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No. 6

Control of Pear Blight in California

by L. H. Day

University of California

THE growing of the Bartlett pear has been so profitable in California that the growers of this fruit can afford to go to considerable expense to control blight and repair damaged trees. To this end the more successful orchardists in those districts where blight is more virulent are very careful to clip out all affected twigs and branches at regular intervals of a week or ten days throughout the spring and summer in order to prevent the disease from working downward into the main branches and trunks. And if the disease gets into a main branch or trunk they have learned how to treat these "cankers" and save the framework of the tree providing the disease has not killed the cambium completely around the branch before it is discovered.

The treatment of the diseased areas (cankers) in the back of the larger branches and trunks has become quite an art with the more careful pear growers. By watching for these cankers throughout the spring and summer, they perform surgical operations to remove the diseased bark and by proper disinfection completely stop the development of the cankers. Until quite recently the only known method of operating was to cut out all affected bark down to the wood and for some distance beyond the visibly affected area. This of course was confined to one side of the branch.

New Method Developed.

Recently a new method has been found to arrest the development of cankers which now has promise of

greatly simplifying the work of saving affected branches. In this method advantage is taken of the fact that the disease first travels in the outer bark for some time before penetrating inwardly to the cambium layer. The disease may run completely around the branch and upward and downward for two or three feet before penetrating inwardly. Sometimes the disease may thus even "run its course" and die out without ever penetrating to the cambium in which case a new bark will be formed and the health of the tree or affected branch will not be impaired. Mr. P. R. Womack, a practical blight cutter working in Oregon, found that by shaving off the outer bark over the canker and disinfecting that quite often the disease would be arrested. But not a large enough percentage of cures was secured to make the method practical. Coming to California in 1914, he found that he could get a higher percentage of control by this method than he was able to secure in Oregon.

Mr. Hayward Reed of Sacramento, California, was perhaps the first orchardist to use the method with some success on a large scale. He tried out quite a number of disinfectants in an effort to perfect the method. Reimer's combination of cyanide of mercury and bichloride of mercury, one part each to 500 quarts of water seemed to give the best results. Quite

a number of orchardists adopted the method, but during the pear blight epidemic of 1920 and 1921, few of them had much success with it. In the spring of 1921 the writer began experiments to determine what promise there might be in this method and try to perfect it if possible. Both the details of the bark shaving operation (this we call scarification) and the effects of various disinfectants were investigated during the years 1921 and 1922. In the investigations of 1921 it became evident that success depended both upon the thoroughness of the surgical operation and upon the use of a disinfectant which would penetrate the diseased inner bark after the outer bark was shaved off. The scarifying operation would apparently have to be continued for some distance beyond the confines of the visible signs of the disease as seen within the bark and not the minutest particle of outer bark left on this scarified area, because the ordinary disinfectant cannot possibly penetrate the thin waxy covering of the outer bark. Apparently the removal of the outer bark in which the disease advances is one of the factors in checking the disease by this method. The water solution of cyanide of mercury and bichloride of mercury seemed to evaporate too rapidly to permit deep penetration into the diseased inner bark, and hence

was often ineffective in stopping the infection. Some preliminary work was done in the use of several common disinfectants which gave encouraging leads for experimental work to be done in the spring of 1922.

Glycerine is Promising.

The addition of glycerine to the water to be used in the Reimer formula as mentioned above, to prevent evaporation and to thicken it, looked quite promising. The following spring this was tried out in our experimental orchard and also by two orchardists. One of these orchardists had in previous seasons been able to arrest practically all cankers treated with the water solution, but this spring it yielded him very little control. Switching over to the glycerine combination, however, he immediately secured from 90 to 95 per cent cures, except in root cases. The other orchardist also secured a high degree of cures with the glycerine formula, except in root cases, where he only succeeded in stopping about 65 per cent of the cases treated. In our experimental orchard one of our students compared quite a number of disinfectants following scarification. He secured 100 per cent control with cyanide and bichloride of mercury in glycerine and water, as against about 35 per cent control with the same disinfectants in water only. Check cases, that is cankers scarified but no disinfectant applied, gave about as good results as where water only was used as a carrier for the disinfectant. The writer also tried several other disinfectants

(Concluded page 12)



This kind of treatment will require 30 minutes' time.

Treatment of this nature requires 10 minutes.

Showing method of shaving bark over a canker.

Thinning Michigan Fruit

by R. E. Loree

IT HAS become a recognized fact that the practice of thinning results in a great improvement both in quality and yield of fruit. In fact, its value can hardly be overestimated and is no longer questioned by progressive Michigan growers. Peach growers in particular recognize the value of thinning and in seasons when there is a heavy set of fruit the operation is seldom neglected. Many apple growers, on the other hand, have never fully realized the possibilities or the benefits to be derived from this simple operation, but with the necessity of improving market grades in order to compete with the high grades of fruit from other producing sections of the country, apple thinning is bound to become a regular orchard practice.

Not many years ago a grower in northern Michigan decided to test the value of thinning apples in his orchard. Two adjacent Wealthy apple trees of the same age and equally well filled with fruit were selected for the experiment. One was thinned at two different times; the other was left unthinned. The first thinning was done in July and the second early in August. At picking time the crop of both trees was very carefully graded and yields found to be as follows: On the thinned tree there were 591 pounds of fruit of which 402 pounds were first grade fruit; 95 pounds, second grade; 9 pounds, culms, and 85 pounds of drops. On the unthinned tree there were 12 pounds of first grade fruit; 183 pounds, second grade; 172 pounds, culms, and 86 pounds of drops. Concerning this experiment the grower wrote as follows: "The result was a great surprise to me as I hardly expected such results in favor of thinning."

This was one of the first reports on the thinning of apples to be received by the Horticultural Department of the Michigan Agricultural College and it is typical of other reports sent in by those who had become sufficiently interested to test the value of thinning. Results were indeed surprising in many instances for there is perhaps no single practice which will so change the size and appearance of a crop of apples or peaches than the removal of half or more of a heavy set of fruit, particularly if properly done at the right time.

Results, of course, will vary with the kind of fruit, the variety, age and

vigor of the trees, soil moisture and other factors. In a few instances thinning apparently has been of little value as far as its immediate effect upon the season's crop of fruit is concerned, but in most cases it has been clearly demonstrated that thinning is very important if one wishes to realize the most profit from his fruit.

What Experiments Show.

Experiments in thinning apples and peaches conducted in Michigan orchards indicate that the chief advantages to be derived from thinning are an increase in the size and uniformity of the fruit and a larger percentage of marketable grades with a correspondingly small amount of culms and low grade fruit.

On trees which have a good crop of fruit, thinning seldom fails to result in a very noticeable increase in the size of the fruit. As an example of its effect upon size, the average weight of Northern Spy apples from trees thinned last season was 6.1 ounces and those from the unthinned trees 3.1 ounces. The average weight of Elberta peaches from thinned trees was 3.9 ounces and those from unthinned trees 1.5 ounces. New Prolific peaches from thinned trees averaged 3.4 ounces in weight and those from unthinned trees 1.4 ounces.

Thinning of Duchess apples in one particular instance proved profitable for the grower. From three thinned trees the percentage of apples harvested which were 2½ inches in diameter or larger was 93.7%, 90.1% and 74.8% respectively, while only 62.8% of the same size fruit was harvested from the unthinned trees.

In another orchard Wealthy apple trees which had been thinned produced an average of 204 pounds of apples 2½ inches or more in diameter, 20 pounds of 2¼-inch apples and 6 pounds of culms, while the crop from the unthinned was 87 pounds of 2½-inch, 90 lbs. of 2¼-inch, 31½ lbs. of 2-inch, and 31½ lbs. of culms.

Thinning Increases Size.

These figures show that the thinning of apples may not result in any increase in the total yield per tree, but that it does result in an increase in the size of the fruit so that the

thinned trees produce more marketable fruit than the unthinned trees. In addition, the fruit is more uniform in size, has a better and more uniform color, and there are fewer culms and undersize fruits to handle at harvesting time. In some cases the increase in size has not been very great but when trees are heavily loaded it is usually sufficient to make the fruit salable where it might otherwise be a total loss.

A comparison of the average amount of fruit of different sizes and grades as harvested from a number of thinned and unthinned Northwestern Greening trees may be of interest in this connection. The figures show that the average yield for unthinned trees was 6.4 bushels greater than for thinned trees, but a difference of only .81 bushels in total yield of 2¼-inch apples. The thinned trees had 2.05 bushels of culms per tree while the unthinned had 7.6 bushels or more than three times as many. The percentage of 2¼-inch apples on thinned trees was nearly one-fourth greater than on the unthinned, while the percentage of culms on unthinned trees was about three times greater. Unthinned trees bore a slightly larger amount of barrel stock but the quality was not as good as that from the thinned trees.

Thinning More Than Pays.

Some growers complain that thinning requires too much labor and that it is too expensive, but the results tend to show that due to increase in size and color the market value of the fruit which remains on the tree after thinning is materially increased and that this will more than offset the necessary cost involved in thinning. Further, it does not cost any more or possibly as much to pick the fruit early when it is small than it does later and much time is saved which would be spent in sorting out seconds and culms in the fall at harvesting time.

Thin Early.

To secure best results thinning should be done soon after the "June drop" or the natural thinning of the fruit has taken place. At this time apples are usually about an inch in diameter. Peach thinning should be

completed before the stone becomes too hard to be readily cut with a knife. Sometimes on account of lack of help or other good reasons thinning is done later in the season. Some growers make it a practice to thin heavily loaded trees at odd times during the season until within a few weeks of picking time. This delayed thinning is often better than no thinning at all and will probably pay for the labor involved, but earlier thinning is usually more profitable and tends to leave the trees in a better state of vigor. Thinning previous to the time that the seeds become well developed allows the nutrients of the tree that would be used in the formation of many seeds and fruits to become available for the formation of fewer seeds and fruits and it is reasonable to believe that the early thinned fruits will attain a larger size than if the thinning is delayed.

What to Remove.

In thinning fruits all diseased or insect and mechanically-injured and otherwise inferior specimens are first removed and the remaining fruits thinned to a certain distance apart. This distance will depend on the variety, the age and vigor of the trees, the set of fruit and other factors. Peaches are usually thinned so that the fruits are spaced about six inches apart. All apple clusters are reduced to one fruit each, and those that remain on the branches thinned from four to six inches apart.

As to methods of thinning, we have found that under usual conditions the work of thinning apples can be done much quicker and cheaper by hand. Some prefer to use small shears or clippers. Shears are convenient for thinning clusters and with varieties which tend to grow largely in clusters it may pay to use them.

Observations from experiments and the reports from practical fruit growers warrant the conclusion that the systematic annual thinning of apples and peaches and possibly some other orchard fruits is undoubtedly a paying orchard practice. In seasons when the crop is light there will probably be no advantage gained by thinning, but whenever the "set" of fruit is heavy and a crop of uniformly good size and color is desired thinning is essential and it must be given as much consideration as pruning, spraying, or any other orchard operation.

Some Reasons for Thinning

by J. H. Auvil

Wenatchee, Wash.

thinning, producing larger specimens of each variety.

Apple Seed Big Feeders.

Into apple seeds goes the fertility of the soil. Since a small apple contains as many seeds as a large apple, the amount of fertility taken from the soil to produce a crop of apples depends upon the number of apples, and not upon the number of bushels of apples. On the other hand, the price of apples depends as much upon size as upon the number of bushels of apples. The larger sizes always bring more than the smaller. To illustrate the difference in returns between properly thinned apples and apples not thinned: A, who thinned, received an average of \$1.50 per box this year for his Delicious apples, the average size being 100 to the bushel. B, a neighbor who did not thin, received for his apples an average of \$1.16 per bushel, his average size being 163 to the bushel. It costs \$1.00 per box to produce and prepare apples for market. Each produced approximately 5,000 boxes on ten acres of orchard. A's profit was \$2,500.00, B's \$890.00, yet it took more

soil fertility to produce B's apples than A's. Therefore, if by proper thinning the number of apples can be reduced without reducing the number of boxes of apples, the pull on soil fertility is lessened, and at the same time returns per tree are increased.

Not only is the size of the apple increased, but a greater percentage of high grade apples is produced by proper thinning. The distance apart that apples should be left depends upon the varieties and the manner in which the tree has been pruned. No hard and fast rule can be laid down for thinning. This requires as good judgment as does any other operation of fruit raising, but these general rules as practiced in the Northwest can be followed advantageously anywhere.

Clusters of apples should be broken and not more than one apple left in a place. In no event should apples be left so close together that they will touch when matured.

If pruning has been properly done, large varieties such as Winter Banana, Delicious and Rome Beauty should be thinned from eight to twelve inches apart. Smaller varieties, such as Winesaps, Jonathan and Grimes Gold-

en, should be spaced from six to eight inches apart.

If apples set heavy on part of a tree, and another portion of the tree is bare of fruit, apples may be left closer together than if the set is heavy all over the tree.

In thinning, all small and defective apples should be removed, leaving only perfect, healthy fruit. This will often necessitate a greater spacing between apples than suggested above, but the next ones on the limb may be left a little closer together.

Thinning should be done as early in the season as it is possible to determine that the fruit is set, in all events before the seeds are formed. Proper thinning of pears and early apples will hasten the maturity of the fruit and will advance the time of picking at least a week. This is a decided advantage in marketing, as first pickings of early fruit bring more than later pickings.

Manner of Thinning.

There are many different methods of removing apples in thinning. Some use shears to clip the stems, but this method is very slow and often makes culms of the apples left by striking the tender apple with the point of the shears.

Others use a sharp edged tool made to slip over the thumb, which cuts the

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The Drying of Cherries and Loganberries

by F. B. Guthrie

COVERING that part of the Northwest in which the so-called French and Italian prunes are grown and marketed as a dried product, a unique part of nearly every prune raiser's equipment is an evaporating plant. These plants are commonly called driers. They range in capacity from 25 or 30 to three or four thousand bushels per day. The latter are community or commercial driers.

With many marked exceptions, these driers are of the tunnel type and are usually built in tunnel units of two, three, four, six or eight. Any number of tunnels may be added. At the plant of the Eugene Fruit Growers in Eugene, Oregon, more than one hundred tunnels are operated in a string. Before taking up the discussion of evaporation of the berry and cherry, a few words concerning construction and cost might be timely.

The tunnel drier is so named because of its form. It is, in brief, a series of oblong boxes built side by side, generally from 36 to 42 inches in width, four to five feet in height and from 18 to 40 feet in length. These tightly enclosed boxes lie obliquely, that is, with a possible inch to the foot rise from horizontal.

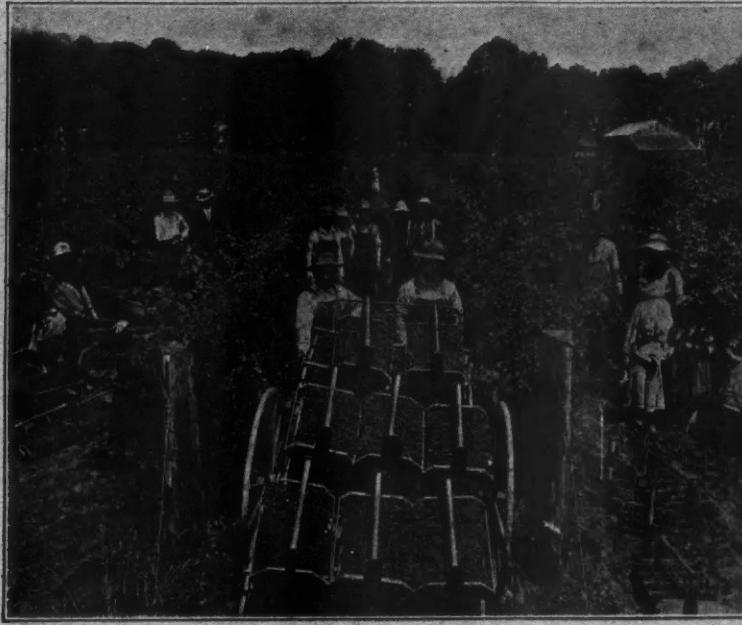
Below these tunnels is a concrete, brick or tile vault of from 8 to 20 feet depth, with an opening into tunnels at the lowest point of three to five feet, closeable by a shutter. Ventilation is obtained through a ventilating shaft with opening from uppermost point of tunnel. This shaft often extends 10 or 15 feet above roof of building.

Heating is commonly accomplished by means of oblong stoves, taking wood in four foot lengths. Each stove is connected at the rear with large piping which passes several times through the vault before finding exit in a tall smokestack. The larger stoves are designed to heat three or four tunnels each.

Cost of Construction.

Now the cost of a typical six tunnel drier at the present time, ranges from \$2,500 to \$3,500, complete with trays. The fruit is dried on trays ordinarily 2 ft. by 3 ft., which trays are introduced through doors at the upper end of the tunnel and removed at the lower end. Tunnels are cleated along the sides to hold trays in position. About four and one-half inches are allowed between cleats. Now with these preliminary remarks, we may pass on to cherry drying.

Cherries in the West are raised for



The harvesting of Loganberries.

canning, local sale, or fresh fruit shipment. It is only by reason of market weakness, rain or other injury that drying is resorted to. Up to very recently cherries were usually pitted before drying. More recently this has been largely superseded by drying whole. The latter method not only cuts down the labor of preparation but also the pit and other bitter waste and the market demand is justifying the later method.

In pitting cherries for drying, a small pitting machine, such as the Monitor is often used. This machine will run as high as 800 pounds per hour. Pitted cherries show a "dry down" of from six to seven, to one. Owing to increase in labor of preparation and the heavy dry down, the cost of five cents per dried pound is sometimes allowed for this operation. These figures apply to the Royal Anne, Bing, and Lambert cherries.

Drying Whole Cherries.

Drying whole cherries has displaced

the old method largely because of the ease and cheapness of the operation. These cherries are spread out over the trays, about one-third of a bushel to each tray, 2 ft. by 3 ft. In traying, leaves and bad fruit are quickly removed but cherries are not stemmed. From 24 to 40 hours are required for drying at a temperature of 165°. The temperature must be watched more closely than in prunes, as this fruit if overheated, quickly acquires a burned taste. This fruit dries from 3 to 3½ pounds of fresh, to one of dried according to variety and season. This refers only to our meaty, not our juicy varieties.

As the labor is light and fuel consumption low, from three-fourths to one cord of wood per dried ton is used; it is possible to have cherries dried for the general prune drying charge of 2c per pound of the dried product. After drying, cherries are scraped from trays while still warm and the stems can then be easily removed by rubbing fruit over the wire

tray cloth or between the hands. After cooling in open bins, the cherries are sacked in strong burlap bags. Sacks with loose lint cannot be used as the lint sticks to the cherries and is hard to remove later.

Drying Loganberries.

The tremendous acreage and tonnage of Loganberries grown in the Willamette Valley in Western Oregon, is both result and cause of this berry being marketed in many forms. Not the least important of these is the evaporated product. In 1922 not less than 1,500 tons of this fruit were thus prepared for market. The cooperative associations have been mainly responsible for the development of this market outlet. At the present time, prunes as well as Loganberries are being rapidly advanced in old and new markets through the carton pack. Loganberries are trayed and run through the same drying process in the same tunnel driers used for prunes.

In traying, however, it has been found best to use eight one-pound hallocks to the tray; thus three trays 2 ft. by 3 ft. are used to handle each 24-box crate of berries. As with all fruit, it is necessary in traying to spread the berries evenly over the tray. Leaves and any adhering hulls are of course removed at this time.

Loganberries dry rather quickly, from 12 to 18 hours being required under the best conditions, with a temperature of about 165°. Berries are scraped from the trays into bins and when cool are sacked in white sugar sacks. From five to six pounds of the green fruit are required to make one pound of dry. On the basis of a 2c per pound charge for drying prunes and unpitted cherries, 3c is charged for loganberries.

From the driers, both cherries and berries are taken to the processing plants, again the same plants as those used for the prune. After a few days or weeks in open bins, during which time loganberries must be shoveled over frequently, they are cleaned and sterilized in a long steam vat. They are then packed immediately in cartons in which glassine paper is used inside and out to make the package air tight. This puts the fruit in the hands of the ultimate consumer in perfect condition, even though that consumer may live in Cuba or Alaska.

The process of folding the cartons,
(Concluded page 30)

Handling the Southern Peach Crop

by F. H. Jeter

1921. In 1922, there were 590,625 crates from 376,713 trees, or an average of 1.6 crates per tree. In 1922, one-third of the trees were just four years old and this year one-seventh of the trees will be four years old. While the percentage of trees coming into bearing in 1922 was one-third of the whole as compared with one-seventh of the whole in 1923, the trees were unusually heavily fruited in 1922 and it seems reasonable, therefore, that 1.75 crates per tree is a conservative estimate for 1923.

"Estimating 1.75 crates to the tree and with the cars loaded the same as last year averaging 456½ crates to each car, the district should ship 1,703 solid cars in 1923. This is an increase of 453 cars and a total of 777,892 crates."

This estimate was made before the recent disastrous frosts. However, a number of orchardists in different communities are finding that they still have some fruit worth spraying and caring for.

Favorite Varieties.

The sections around which most of the peach orchards are planted in North Carolina take in the commun-

ties of Aberdeen, Candor, West End, Hoffman, Jackson Springs, Marston, Samarcand, Sanatorium, Pinehurst, Southern Pines, Eagle Springs, and other smaller stations. About 1,018,782 non-bearing trees in new orchards are now in this district and 444,424 bearing trees. The figures show that of the bearing trees there are 13,089 Mayflowers, 14,618 Hileyas, 26,181 Carmens, 131,017 Belles, 191,761 Elbertas, 32,106 Hales and a smaller number of others. Among these are the Alexander, Red Bird, Greensboro, Arp, Early Rose, and Slappy varieties, but the six for which the number of bearing trees are given are the most popular.

Ripening Dates.

The ripening period begins with the Mayflower variety on about May 25 and then in the order named the Greensboro begins about June 1; the Arp, June 15; Carmen, June 25; Hiley Belle, July 10; Slappy, July 15; Georgia Belle, July 15 to 20; Elberta, July 25, and the Hale on July 28.

Most of the growers use the ½ bushel basket made of oak for picking purposes. The fruit is then hauled in on trucks or on small wagons either flat or double decked. At the packing

plants whether large or small, the sizing and grading is mostly done by hand, using in the larger houses the canvas belt conveyors. The grading is done largely by local help with some importations from the truck and peach sections of Florida and Georgia. Nearly all of the packing is done by experienced packers who follow the peach crop up the coast. The Georgia crate holding six four-quart baskets is mostly used for shipment. Recently the Sandhill growers agreed to enlarge the bottom of their baskets somewhat to make a more uniform pack from the top to bottom. A pad of excelsior goes on top of the basket to protect the fruit against bruising in shipment. In some cases the bushel baskets are used but this is done only when there is a great rush or when the fruit is slightly immature or of poor quality. The fruit is not as rigidly graded as when the Georgia carrier is used and in most cases the only grading done is to level off the top of the basket.

Each crate is nailed by special nailers who are assigned to this task. In all the peach growing sections these nailers are very efficient. When the fruit is to be shipped in a solid car, three nails are used in each end; when shipped by express, four nails

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Handling the California Peach Crop

by Warren P. Tufts

University of California

CALIFORNIA, the greatest peach producing state in the Union, has three primary outlets for the enormous tonnage produced each year, the "green," the cannery, and the dried fruit markets. The peach grower in planting chooses his varieties having quite distinctly in mind the disposal of the product. Peaches that are canned or dried are raised for that purpose; these outlets are not for the disposal of second grade or cull shipping fruit.

It would be most interesting to know what portion of the crop from the 10,000,000 peach trees in California is annually shipped, canned and dried. The growing of shipping peaches is more or less restricted to certain districts, particularly the foothills, which on account of favorable climatic conditions are able to produce early maturity and so secure the high prices which are necessary to make the shipping of fruit across the continent a profitable transaction. It seldom pays to ship California peaches in mid-season when the Eastern markets are well supplied with fruit from either local or nearby districts. It is quite possible, however, that when the eastern housewife learns of the superior canning qualities of the clingstone varieties that a new shipping market will be established.

The Muir, Lovell and Elberta in the order named, are the most important varieties used for drying. Until recently the canneries would accept a limited amount of these yellow freestone varieties but with the constantly increasing tonnage of the yellow clingstone varieties, so admirably adapted to canning, the freestones have fallen into more or less disrepute for this purpose.

The following list of popular peach varieties arranged by the California Fruit Exchange gives some idea as to relative ripening dates. It will be noted that varieties used primarily for canning and drying are included with the other sorts which are usually grown for eastern shipment.

TABLE I.
Ripening Dates.

Variety.	Type.	Time of Ripening.
Mayflower	Semi-cling	June 1-June 15
Alexander	Cling	June 8-June 20
Triumph	Semi-cling	June 12-June 30
Hale's Early	Cling	June 23-July 6
St. John	Free	June 28-July 6
Decker	Cling	July 7-July 20
Early Crawford	Free	July 10-July 27
Foster	Free	July 15-July 31
Strawberry	Free	July 15-July 31
Elberta	Free	July 21-Aug. 6
Late Crawford	Free	July 24-Aug. 15
Sequoianum	Free	July 22-Aug. 15
Muir	Free	July 22-Aug. 15
Lovell	Free	Aug. 5-Aug. 20
J. H. Hale	Free	Aug. 5-Aug. 20
Salter	Free	Aug. 25-Sept. 15
Tuscar	Cling	July 13-July 27
Orange	Cling	Aug. 5-Aug. 20
Albright	Cling	Aug. 1-Aug. 20
McDevitt	Cling	Aug. 5-Aug. 20
Phillips	Cling	Aug. 26-Sept. 15
Levi	Cling	Sept. 2-Sept. 25

Except for the early clingings, yellow

freestone varieties are usually used for shipping. These varieties may also be dried and this outlet is a "life-saver" in seasons such as 1922, when the eastern market conditions were not the best for the California grower, due to the coal and railroad strikes and one of the largest fruit crops on record over the whole country. There is a nice demand for early deliveries of dried peaches, which makes the drying of the early maturing sorts profitable.

Dried Peach Outlook Good.

The outlook for the dried peach industry in California is most promising.

paratively new process by which the objectionable "fuzzy skin" is taken off, the dried product resulting in the "Practically Peeled" dried peach of commerce.

Although dried peaches are produced throughout the state, the great interior valleys of the Sacramento and San Joaquin produce the bulk of the tonnage.

Canning peaches are also very largely produced in the interior valleys; however, certain sections have developed faster in this respect than others. For instance, it is said that sixty-five per cent of the world's canning peaches are raised within a fifteen

proper stage of maturity for the intended market. For shipment the fruit must be hard-ripe at picking time. White fleshed peaches must have lost their deep green cast and show light or silver green. Yellow fleshed peaches should have the "ground" color changing to yellow or golden yellow. The fruit must be selected of uniform maturity in order to reach market in attractive condition. The orchard should be picked over at least three or four times in order to get the fruit at exactly the right stage of development.

Peaches for the cannery must be firm but well colored and matured. Distance from the cannery must also be considered since it often happens that this fruit is shipped from two hundred to three hundred miles in "lugs" without packing. It is surprising, however, how well the clingstone varieties stand handling when fairly ripe, which same treatment would render freestones unfit for consumption. In addition to their quality and texture the clings have undoubtedly gained in popularity on account of their fine "handling" characteristics.

Fruit which is to be dried is left on the trees as long as possible, in order to secure the highest sugar content, and yet, must be firm enough to harvest, haul to cutting shed, cut, and place on drying tray without losing its shape.

A tripod form of ladder is universally used in California deciduous fruit orchards. Picking pails or baskets are used for peaches—never bags. Fruit is hauled to packing house or cutting shed in either the picking receptacles or in 50-lb. orchard or lug boxes. When the fruit is sold to the cannery, the buyer furnishes the boxes. Greatest care is exercised in handling the fruit, especially that designed for shipment, from the time it is taken from the tree until it is on the drying trays, loaded on the car for shipment, or delivered to the cannery. As a usual thing the cannery assumes responsibility for the fruit shortly after it is harvested and placed in the cannery boxes. This fruit is either picked up by a truck at the orchard and hauled directly to the cannery or else delivery is made to a cannery representative at a railway siding where there is a convenient public scale.

Handling for Shipment.

Peaches intended for shipment are in general made ready for the market in the grower's own packing house. Here the fruit is brought from the fields and the grading* for quality and packing operation are performed at the same time. The fruit may or may not be packed directly from the receptacle in which it came from the orchard. In recent years more packing

(Concluded on page 13)

California dry-land cutting shed and sulphur houses in the rear.

Showing 3 styles of peach packs, the 2x2 diagonal, 3x3 offset and 4x2 diagonal.

Growers delivering dried peaches to the packing houses.

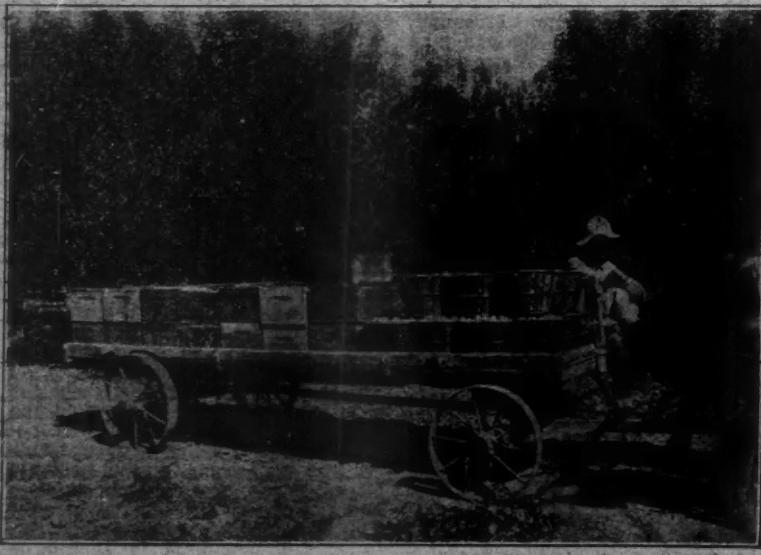
Cutting peaches and removing pits ready for drying.

There are each year fewer and fewer bearing trees of drying varieties due to the taking out of old orchards and the planting of raisin grapes in their place. The center of the dried peach industry has of recent years moved steadily northward from Fresno, the present seat of the raisin industry. The strongly organized peach growers' co-operative association has done much to increase the demand for dried peaches by the introduction of a com-

teen mile radius of Yuba City in Sutter County. The Tuscan and Phillips cling have been the most popular canning varieties of recent years. At present, there appears to be a distinct need for varieties ripening midway between these two and for this purpose the Sims, Palora, Peak and Johnson are being widely planted.

Picking the Fruit.

Peaches must be picked at the



Handling peaches from orchard to packing house. Note lug boxes and baskets. A typical California harvest scene.



Method of loading peach boxes in refrigerator cars for eastern shipment. Each box weighs 31 1/2 lbs. gross. It requires 1210 boxes for a carload.

Our Editorial Comment

Be Optimistic

FRUIT growers should be optimistic. The future really looks bright. Do not be influenced too much by statistics. Statistics may mean very little. One must always know at what point statistics start. We think as a rule statisticians have a tendency to be a little over-pessimistic, and statistics can be worked up to prove almost anything at any time.

There are many things to be happy and optimistic over. Wages are going up, which means a greater buying power on the part of the laboring man and that means that he will buy and eat more fruit. Labor is at work, in fact, there is a shortage of labor in the country at this time. There is no excuse for idleness. It is a time for the full dinner-pail of the laborer. Building activities are the greatest in the history of our nation and the number of permits for new buildings is becoming larger and larger all the time. People for the first time now in several years are quite liberally buying luxuries, which always shows that they feel that conditions are prosperous. The mail order houses report from month to month an ever-increasing business. It now looks as though they will surpass all former records. The automobile industry is getting on its feet very rapidly. Firms which were in distress awhile ago are now in very good shape financially and some are beginning to pay dividends. Manufacturers of farm machinery all report that their factories are running at full blast and in many cases they have more orders than they can immediately fill. The steel industry is paying big dividends. Bank clearings are increasing. The textile industry of the east and south shows great activity.

Our cities, which are the great consuming centers, are bee hives of industry. The optimist is found everywhere, the pessimist is rare. Forget the past, do not brood too much over the water that has gone over the dam. Get the spirit of the times—be optimistic.

Mosaic Diseases

THE mosaic diseases have been the most baffling of any we have had to contend with for many years. There are at least twenty plant families which are attacked by mosaic diseases. Some of the most common plants which suffer greatly from such attacks are the bean, potato, tomato, melon and raspberry. The typical symptoms of this disease are a mottling of the foliage. Some portions of the foliage are dark green, but other areas are very light. The leaves tend to crinkle and become more or less distorted and are often dwarfed. The plants reduce their yield. Often wilting and leaf dropping takes place and the plant becomes generally unproductive. It has been known for some time that the disease can be transmitted by insects. Plant lice are mainly responsible for the widespread dissemination of the disease. It has been known for some time that sap or juice taken from diseased plants and introduced into the tissue of healthy plants will cause the disease. Plant lice sucking the juice of diseased plants have transmitted the disease to healthy plants in this way.

There are many theories concerning the cause of the disease. One is the enzyme theory. There is another belief that the disease is bacterial, although most plant pathologists believe that the disease is quite similar to some animal disorders. Recently some most excellent work has been done by Ray Nelson of the Michigan Agricultural College. This has been published in Technical Bulletin No. 68 and a review of the work has also been shown in the quarterly review of the Michigan

Experiment Station. The findings of Mr. Nelson startled the plant disease world. Plant pathologists all over the country feel that his discoveries are a marked step forward in the fighting of the mosaic diseases. Mr. Nelson shows that the disease is due to an elongated protozoan, a very low form of animal life. Discovering the cause of the disease is one of the first steps in its control.

We can look for some rapid developments in the control of the mosaic diseases in the next few years, as the lead that Mr. Nelson has given the plant disease world will enable many investigators to work on the disease and in the relatively near future we should know much more about it than we do today.

Apple Shows

FRUIT growers are going to have a feast this fall as a number of high-class apple shows are going to be held, and these already have definite dates set for next November. Publicity is already going out concerning these fine shows.

The most important man connected with an apple or fruit show is the publicity man. Upon him, perhaps more than upon any other one, will depend the success of the show. On the whole, apple shows and most big fruit shows have been failures. Communities or groups of growers who attempt to hold elaborate shows generally do not continue to hold such shows but will hold them only spasmodically because the benefits received are not commensurate with the hard work and the heavy expense involved. At the best, the horticultural show reaches but few producers and a relatively small proportion of the consumers. The rather small horticultural show such as most horticultural societies hold—shows which are educational in their character—probably will always have a place, but the permanency of the big show depends very much upon the results obtained, and these are often very disappointing. The message to get across from a big apple or other fruit show is to get people first to eat more fruit because this means that the growers can sell more fruit to advantage.

In back of every fruit show must be a constructive program. First, the growers of the district or community must grow good fruit. The city buyer becomes more and more fastidious, he is more and more exacting in his demand. He knows he can get good fruit and more and more he is discriminating against fruit which is unattractive in appearance. The fruit must be of fair size, of good color and free from blemishes if it is to attract the better class of American buyers, or, for that matter, the average consumer. Second, the fruit must be graded and packed skillfully and honestly. No district or horticultural community or grower can hope to obtain the highest prices and realize the greatest horticultural success unless the fruit is so packed that when one sees the top one sees all. In other words, the fruit in the bottom, side or top of the package must be indicative of what the inside contains. The third step which is absolutely necessary to success is a wide distribution of the product. Congestion of the tonnage in a few large centers is not the way to sell fruit.

If the horticultural show has behind it a program such as we have suggested, coupled with skillful publicity, very gratifying results will be obtained. In every big show there must be an element of education. The producers and consumers must be educated concerning the merits of fruit in general, the merits of specific varieties, the proper time and use for varieties, and many other subjects too

numerous to mention at this time. The mere holding of large horticultural shows where a visitor simply seems to see a great mass of pretty fruit means little or nothing. Behind it must be a constructive educational campaign.

Thinning Pays

WE are running two articles on thinning in this issue, one from the eastern and one from the western point of view. Thinning is an orchard practice which pays big dividends. Occasionally there is an orchard here and there, especially in the east, where perhaps thinning does not pay a big dividend. These are orchards which are so located that they can sell all the fruit they produce right at their gate. Thinning in that case is delayed until mid-summer or early fall and the thinnings are sold as early green apples, but these cases are rare. There is practically no district that ships its fruit to the world's market but what must thin its fruit intelligently if that district is to realize the highest returns for the fruit. It is impossible to grow fruit to the highest degree of perfection without thinning. Thinning produces size, color and helps to produce fruit free from blemish, which the market pays a premium for. It costs just as much money to grow and handle culls as high-class fruit and rarely will the culls pay dividends. In spite of everything we can do, there will be a certain percentage of culls, but it is to our interest that orchardists reduce this percentage to the very minimum. Thinning is the way to conserve the vitality of the trees and at the same time reduce the percentage of culls and thus increase the gross returns which the orchard will produce.

The Peach

WE are giving our readers in this issue some very fine articles on peaches. The peach is a very perishable fruit. To realize the best results, it must be grown to a high degree of perfection, harvested at the proper time, carefully graded and properly shipped. Despite the fact that the peach is so very perishable, it will stand very long shipment. In the big cities this winter we have seen on the fruit stands peaches from South Africa, Chile and Argentine, arriving in our markets in very good condition. Last summer fresh peaches were shipped from California to England, arriving in perfect condition. Success in peach growing depends to a large extent on the marketing. The success of marketing depends to a large extent on how skillful the grower is in harvesting, grading, packing and shipping methods. J. H. Hale, years ago in his famous Georgia orchard, showed that it did not pay to handle cull peaches, that large fruit, skillfully packed and well distributed, was generally a paying proposition.

We urge all peach growers to read carefully the splendid articles we have in this issue on the handling of the peach crop.

Conserved Food

BEGINNING with our May issue we started a series of articles on conserving fruit and fruit products. These articles are being written from the point of view of the home, the small grower and the man who is in the business as a commercial enterprise. From now until October, we will have a splendid series of articles on evaporation or dehydration, canning, juice manufacture, cider making, vinegar manufacture, and others too numerous to mention. We know that our readers are all going to be greatly interested in this splendid series of articles.

Summer—The Critical Period in Orcharding

by C. I. Lewis

SUMMER is the critical period in our orcharding. The months of June, July and August will determine just the kind of fruit you will harvest in autumn. Many an orchardist has taken good care of his orchard in the spring. The weather has been favorable, there has been a good set of fruit. He finds his soil in a good condition and he feels rather optimistic. There is great danger right at this point that he will let down. Some disease or pest will get in its deadly work and cut the orchard profits very materially. The soil moisture may be lost, which will mean that the fruit will not develop to its highest degree of perfection and that the trees may be set back even for future years. Again, there is the man who has a rather light crop, in fact, he thinks he has practically nothing and neglects his trees accordingly. He is surprised in the fall to find out how much fruit the trees really did bear and wishes then that he had taken good care of the trees.

Summer is the time for all orchardists to be continually on their guard if they are to bring through a big crop successfully.

Hold the Moisture.

Nothing is more important in orchard operations than holding the moisture. It does not make any difference whether you are practicing clean tillage; whether you are irrigating and growing alfalfa or other shade crops in your orchard; whether you are mulching with hay or straw or natural grass mulch; whether you are living in southern California and are practicing the basin system of mulching, hauling in heavy loads of alfalfa, straw, bean straw, etc., in order to furnish nitrogen and hold your moisture, or whether you are practicing dry farming or irrigation farming, it matters little, the problem of holding the moisture has to be met successfully by all growers. It is very serious to allow a heavy bearing orchard to suffer for want of moisture. Lack of moisture is shown in the fruit in many ways—the fruit does not make size and the color becomes dull. Apples often show dry spots, or pithy or corky tissue. In stone fruits an internal browning will often take place around the pit. In apples such conditions as bitter pit and other functional troubles develop. The leaves of the trees do not develop normally. Little twig growth is made. The buds which are formed are not strong enough to winter well or to bring the fruit into heavy bearing a second year. Therefore, it is all important that we strive in every way to maintain a good moisture supply in our orchards during the hot season and the vigorous growing months of June, July and August.

The Strawberry Bed.

The strawberry bed must come in for much care in the summer. If the best results are to be hoped for next spring. During June and early July, whenever tillage is given, it should be relatively shallow. Irrigation will be found of great help with the young bed and with the old bed after the crop has been harvested. Irrigation must be practiced sparingly, however, just before the berries are harvested, as it tends to make a soft berry. In the new set bed the blossoms must be kept picked off. That is especially essential with the everbearing type that you hope will bear this fall. It is disastrous to allow them to set many blossoms in the spring and early summer. Let them put all their energy into growing a strong crown.

If you have a strawberry bed that has outlived its usefulness, plow it up as soon as the crop is harvested. In this way you will help control many pests which might otherwise spread to new strawberry beds in the community. Some find that after the crop is harvested it is well to allow the tops to dry somewhat and then burn them. In this way, a new, vigorous top will be developed. Shortly after mowing and burning, if one has plenty of irriga-

tion water, it will be of great help. There are many districts in the east that should irrigate just as well as the districts in the west. Overhead systems can be used or common furrow or till systems of irrigation can often be practiced.

Clean the Packing House.

The packing house may be the source of a great deal of trouble in the future. Old, decayed fruit may be carrying over diseases which will be ready to get in their deadly work next fall. It is well to whitewash or paint the house. You can do this easily with your spray machine, using cold water, paint or whitewash, or you can apply a vitriol paint as a disinfectant. It is not a bad plan to screen the windows of the packing house, because you will find there are a number of codling moths winter over in

ly rapidly, that sweet cherry trees must not be tilled or fertilized. There seems to be absolutely no basis for such a contention. As a result of this feeling, cherry trees are often neglected, the moisture is allowed to escape from the ground, the trees suffer and become devitalized and ultimately die. One of the best ways to fight the gummosis, the dreaded disease of sweet cherry, is to keep the cherry trees growing in a good healthy condition. It is a mistake to harvest big cherry crops in June or July and immediately cease all activity in the orchard. Tillage and soil care should be carried on into the summer. Some growers find that they can prune to pretty fair advantage right after the harvest. Considerable breakage has taken place in the trees anyway from harvesting and moderate pruning right after the harvest will

to fight the moth effectively the fruit must be kept covered with an arsenical spray. By careful work, by efficient work, the codling-moth loss can be kept down to two per cent and less. By careless work the loss may reach to 40 per cent. Remember in practically all districts where the codling moth was bad last year it is apt to be bad this year.

The brown rot will begin to get in its deadly work. On the peaches it has been controlled by self-boiled lime-sulphur, although the new dry mix, as brought out by the New Jersey Experiment Station, is worth experimenting with.

Shot hole on the sour cherry needs great attention. Thousands of acres of our finest orchards were defoliated last year. Bordeaux mixture, 3-3-50, is very efficient in controlling this disease. The first spray should be put on as soon as the petals have fallen, the second spray, two weeks later, and the third spray, immediately after the harvest. If such a schedule is carefully followed, this disease can be controlled.

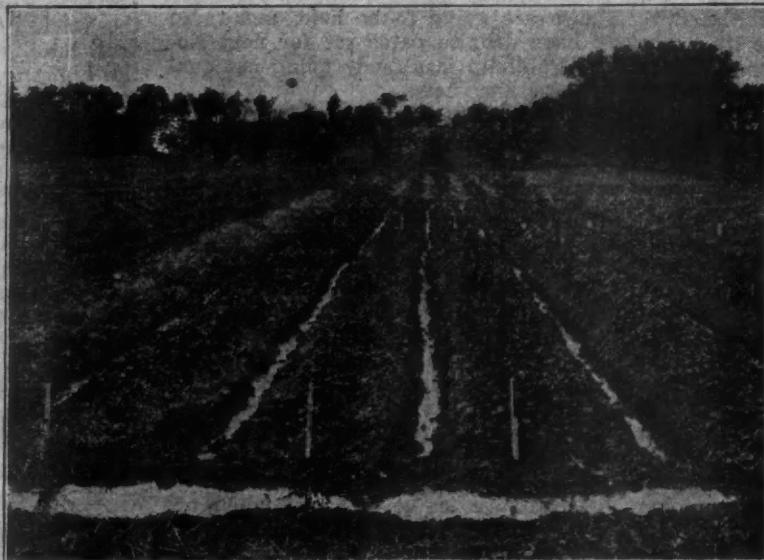
Apple scab can be controlled by Bordeaux or lime-sulphur, but the scab must be watched for. When it first appears it will show on the under side of leaves on varieties that are very susceptible. Little olive green patches will begin to form. As soon as these show their presence, spray pumps should be put into commission at once. Do not wait, however, for these little spots to develop but follow the definite schedule which is outlined in the February edition.

Aphids can be controlled very easily by using nicotine sulphate. In some sections, with young orchards especially, the growers are distressed to find that the leaves are badly chewed and sometimes the tree is nearly defoliated, but no insect can be found. This is the work of the tree cut worm which works at night. These worms, during the daytime, will hide under stones, clods of earth, boards or anything at the base of the tree. They can be controlled by spraying with an arsenical spray and by using poisonous bait which has been sweetened. Every year caterpillars get in their deadly work and defoliate large orchards and yet this insect is easy to control. The nests can be burned at night with kerosene torches, but a good spraying should be given to the trees. Almost any stomach poison will do.

The cherry maggot or worm is becoming more and more a menace in practically all our cherry districts. The adult fly will generally appear in June. It lays an egg which hatches into a little maggot in the fruit. This maggot often does not show at harvesting time but will show up in late-maturing fruit which hangs on the tree. A small amount of spray containing arsenate of lead, sweetened with brown sugar or molasses, will kill the flies. It is not necessary to spray the entire tree, but a few branches on the south side of the tree is generally sufficient.

Cane Fruits.

As soon as the crops of blackberries, raspberries or loganberries are harvested, the old vines should be cut out and burned. These old vines carry over many disastrous diseases. Any plant that looks suspicious in any blackberry or raspberry patch should be burned. Summer pruning can be carried on in the young canes of blackberries and black raspberries. As soon as the canes are two or three feet high they should be pinched back, forcing out laterals. If these laterals become too rangy, they can be cut back slightly in the spring of the year. Blackberries, like the Evergreen, which are trained on trellises, should be clipped back in early summer so as to form laterals and make a rather compact hedge. This is a much better system of growing the berries than to allow them to sprawl out over large areas. Red raspberries are very rarely summer pruned.



IRRIGATING A STRAWBERRY PATCH IN MISSOURI.

the packing house. If you have the windows screened, these moths cannot get out and lay eggs on the nearby trees.

The Cover Crop.

Orchards in which clean tillage rules should grow cover crops. There is nothing that will take the place of plenty of organic matter in the soil and supplement very nicely the clean tillage and the artificial fertilizer applied. If you are in the south, beans and cow peas make most excellent cover crops. Along the Atlantic coast hairy vetch and buckwheat should be used. In the Pacific Northwest, Oregon vetch is in a class by itself, except for the higher altitudes where winters are more severe, there the hairy vetch is superior. In the Rocky Mountain district, and dry land farming districts, the alfalfa or favae is worth considering. In southern California the purple vetch is probably the best plant to grow. Bur clover is a favorite in parts of the Rocky Mountain and Southwest districts. It does not make very much difference which one of these nitrogenous fertilizers you use, as long as it is one suited to your conditions. But watch the organic matter in your soil, keep up the supply of nitrogen and keep up the supply of fiber, which will prevent washing of the soil in winter. Protect the ground to a certain extent from alternate freezing and thawing and you will keep the trees in a better growing condition.

The Sweet Cherry Orchard.

More sweet cherry trees have died from neglect than from any other cause. There are many foolish notions in the country, especially in the sweet cherry districts, that sweet cherries must not be allowed to grow fair-

put the trees in good shape for next year's crop.

Young cherry trees tend to grow very upright and rangy. To counteract this tendency in the first eight or nine years of life of the orchard, light summer pruning in early June, where the terminals are clipped back, will force out laterals. As a result, the trees will become broad and spreading; they will have a much greater bearing surface, they will be very beautiful trees to look at and they will have the possibility of bearing huge crops. If one would get away from that tall, rangy, lengthy type of tree, summer prune, and, at the same time, the black aphids, which begin to come on in early June, can, to a certain extent, be controlled by this same summer pruning, as the aphids can generally be found on the tips of the branches.

Fight the Insects and Diseases.

Summer is the time to begin to look after the borers. The parathion-chlorobenzene has established itself as an efficient control for borers in our peach and plum orchards. It is now rumored, this same substance may be of some benefit in controlling root insects on strawberries and possibly the woolly aphid on the apple, it will prove to be a great boon to a new class of growers.

The codling moth will not sit on the branch and chirp for a few days and wait for you to come and spray. As soon as the night temperature reaches 60 degrees, the moths will begin to become active. It is now time for you to get out that February edition of the AMERICAN FRUIT GROWER MAGAZINE and read pretty carefully the spray schedules. Remember that apples grow rapidly, that

Apple Tree Types

THE University of Maine has recently issued Bulletin 305, entitled "The Relation of Tree Type to Productivity in the Apple." This is a subject which will naturally interest all apple growers. The summary of this bulletin will be of interest to our readers and is as follows:

A study of 881 trees in Ben Davis Orchard No. 1 at Highmoor Farm, shows that trees of the same age and even under apparently identical environmental conditions may vary enormously in productivity.

Productive and unproductive trees are closely associated with a definite type of habit of growth. The productive, or Type 1 trees, are large, open and spreading, with short laterals and bear many spurs. The unproductive, or Type 3 trees, are small and upright, with slender branches and few spurs. Between these two extreme types are a number of intermediate types.

An analysis of cost of production for 1914 shows that in our Ben Davis orchard a tree must produce approximately 108 lbs. of fruit to return a profit. On this basis 29 per cent of the 881 trees were kept at a loss. Most of the unprofitable trees were of Types 3 and 3-2. Type 3 trees were kept at an average loss of 90 cents while Type 1 trees were kept at an average profit of \$2.30.

The primary causes of differences in productivity of fruit trees may be attributed to soil, root stocks, or differences in scions. Soil was found to play an important part in causing differences in yield as indicated by the natural grouping together of unproductive trees. Of the 257 unprofitable unproductive trees about 65 per cent are apparently due to soil conditions. Unproductive trees surrounded by only productive trees are unproductive due primarily to unfavorable root stocks, inherent differences in scions of the clonal variety or factors other than soil. The percentage of such trees is about 35 per cent of all unprofitable trees. There is no critical evidence that there are inherent differences in yields of apple trees of a clonal variety due to bud mutation. In all cases when scions have been selected from productive and unproductive apple trees there have been no increased yields of the scions from productive trees. There is evidence that variable root stocks may cause differences in yield of fruit trees and that unproductive trees may often be attributed to unfavorable root stocks.

If apple trees are unproductive due to soil conditions, it is possible that they can be made more productive by application of commercial fertilizer. We have, however, found no influence of even heavy applications of a complete fertilizer on our Ben Davis orchard during a six-year period. The addition of fertilizer to other varieties, or the addition of other forms of fertilizer, may cause increased yields, but increased yields may not mean more profitable trees under such conditions.

A digest of the evidence shows that inherent differences in productivity are rarely, or never, present in clonal varieties of apple trees. Such being the case little justification exists for top working unproductive trees with scions from productive trees.

Unfavorable root stocks probably cannot be remedied in a mature orchard but they can be avoided to a considerable extent in a new orchard by selecting only large, vigorous, rapid-growing nursery stock, as the evidence shows that small nursery trees usually result in small trees in the orchard. The best grade of one year old trees are recommended because their large size is due to ability to make good growth and not due to age. The establishment of clonal varieties of unusually favorable root stocks would undoubtedly result in more uniform and, in general, more productive trees.



QUICK ACTION BRAKES EXTRA LARGE AND EXTRA SAFE

In the construction of Dodge Brothers Motor Car, every consideration has been given to the owner's safety.

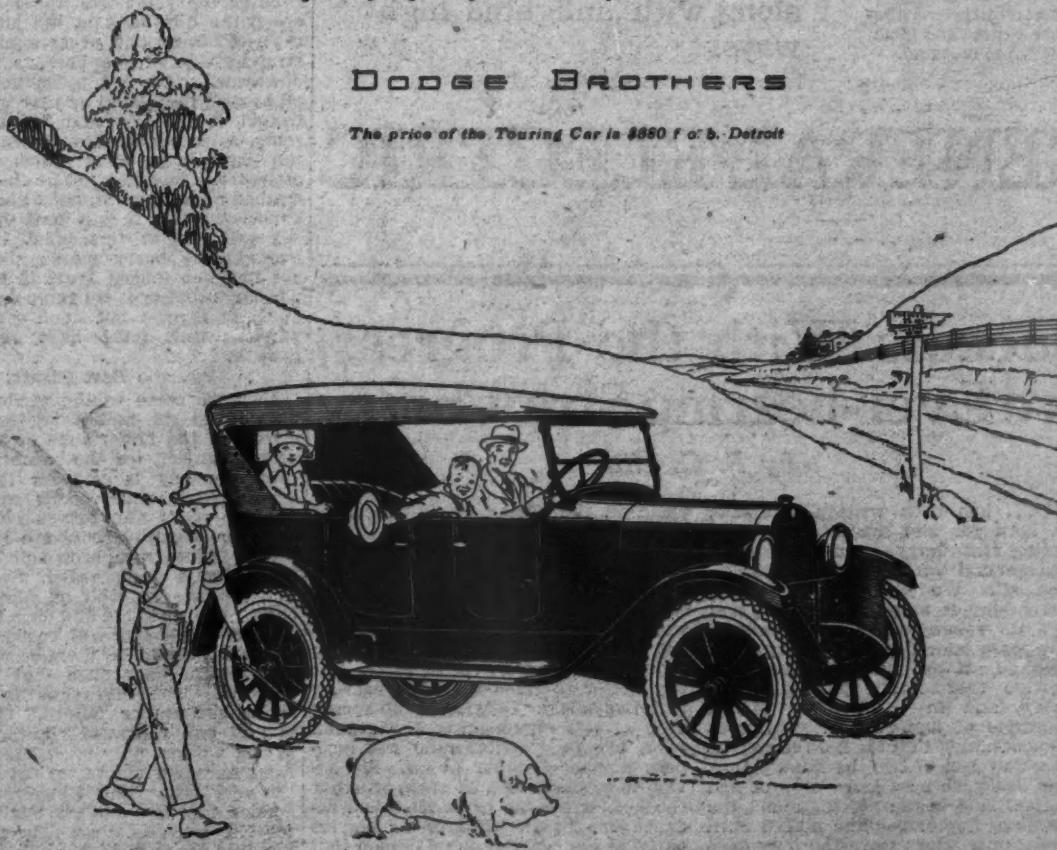
This is particularly evident in the brakes, which, with their 14-inch drums and 2½-inch lining, are appreciably larger than the average. The extra surface thus provided develops greater friction when the brake bands contract over the drums—and it is this friction which stops the car.

Connecting levers are designed to transmit the maximum of power with the minimum of effort. The slightest pressure on the brake pedal has an immediate effect. This pressure is distributed evenly between the two rear wheels by a highly efficient equalizer, which prevents skidding because it retards both wheels simultaneously.

And the brake bands grip evenly all around the drums. This protects the lining against irregular wear and enables the driver to stop quickly, quietly and safely.

DODGE BROTHERS

The price of the Touring Car is \$850 f.o.b. Detroit



DODGE





The first stretch of highway to be illuminated by the new General Electric Novalex Highway Lighting units—the Albany road near Schenectady, N. Y.

Light on the highway

After nightfall cities were once shut in by darkness as most of the countryside is to this day. As late as the end of the 17th century the streets of London were lighted only by candles hung out by the householders.

City streets are now brilliantly lighted by electricity—and another generation will wonder how we ever got along with unlighted highways.



More than a million dollars a year is devoted to research by the General Electric Company in order that the giant energy—electricity—may be made more and more useful to mankind.

GENERAL ELECTRIC

Success With the Progressive Ever-bearing Strawberry

by F. C. Hill

MUCH has been written and said, again in the spring, from the same both for and against, the ever-bearing strawberry. Ten years ago I tried several varieties and discarded them all. We picked a few poor, knotty berries along in October, and gave up raising them as a failure. Five years later I decided to try them again. I set out three hundred Progressive ever-bearing plants in the spring, and in October we picked quantities of fine berries. This was so encouraging that the next spring we set a new bed of two thousand plants. This bed gave us a large crop of fine berries. We began picking about the middle of September and picked until frost came. Ours were the only ones on the market at that time that year, so they sold well at a fine price. Though we kept no record of the number of quarts picked and sold, the total was surprisingly large. Often times we got several crates to a picking. Since then we have increased the size of the beds each year, getting wonderful crops of nice, fine-flavored berries, both in the fall months and

again in the spring, from the same beds.

As a commercial berry I am convinced the ever-bearers have their place. People like good, fine-flavored strawberries, and will buy them pretty steadily all through the season if they are to be had. I am often asked by prospective growers if it would not pay better to raise the June bearing varieties solely. Outside of the spring crop of the ever-bearing the second year, the two varieties do not compete with each other at all. My advice is to plant half of each, whether the beds are large or small. And because one has a big crop of berries early in the summer is no reason that good, luscious strawberries will not be appreciated in August, September, October, and perhaps a few in November.

Growing Big Crops.

I will give the method by which I have learned, through my own experience, to grow big crops of ever-bearing strawberries, using the Progressive variety. As early in the spring

as the soil can be worked we get our ground ready. This should be fairly rich—though not overly so—any good garden soil will do. The main thing is to get the plants set out early. A frost, or even a freeze, after they are set, will not hurt them. The sooner they are taken up and reset after the frost is out of the ground the better. This is especially important with the ever-bearing kinds since they begin to fruit the first year. The first step is to get the ground properly prepared, which means it must be well ploughed, disked, and either dragged or planked down smooth. Then we mark our rows, three and a half feet apart, with a light marker made like a sled, pulled by hand, and make three rows at a time.

Handling the Plants.

Next we get our plants ready. We dig the plants with five tine forks, shake all the dirt out of the roots, pack them lightly in baskets or boxes and cover with old blankets or burlap. They are now carried inside where neither sun nor wind can get at the roots and trimmed for setting. We cut off all the old runners and dead leaves, and if the roots are extra long we trim a quarter or a third from them. After trimming, the plants are packed evenly and lightly in the baskets again and sprinkled with water so the roots will be kept damp. They are now ready for setting. I like best to dig, prepare, and set the plants the same day, but if for any reason this cannot be done we sprinkle them well, cover them over, and put them in the cellar until we can set them. But the roots must be kept moist. One man or two boys, can dig and trim as fast as one man can set out.

For setting out we use a large size mason's trowel with about one inch of the point cut off. This is stuck into the ground four or five inches deep and pulled strongly toward the operator. This leaves a hole with one straight side. The level of the top soil on this side has not been disturbed. Place the roots against this straight side of the hole, with crown of plant even with the ground level. Holding the plant with the left hand, scoop the dirt back in the hole with the right hand and press against the straight side of the hole as well as downward. Do not press the earth all around the plants as that will tend to get it too low and crumple the roots. A little loose dirt drawn around the plant helps as a mulch to hold moisture. This may not be the fastest method of setting out, but I know from experience that it is a good one.

I will say at this point that the ever-bearing berry plants should be set fourteen inches apart in the row. The June variety is set three feet apart, since it throws out such long rank runners that must have room for growth.

Buy the Best Plants.

Now we come to the grade of the plants and we cannot lay too much stress on the importance of this part of the subject, for the success of the crop depends largely on it. Only plants from young beds and with healthy roots and leaves should be set out. Healthy roots are light colored. Plants with brown or blackish roots should be discarded. Such roots indicate age as well as disease. It costs no more to set and care for good, healthy plants, that will respond quickly to the care given them, than it does to care for poor ones that will not respond. The difference in results spells success or failure. Out of a bed of two thousand plants set last spring we lost only four. As we now raise our own plants we set out only the very best. But if buying I would sooner pay five dollars per hundred for No. 1 plants, than fifty cents per hundred for poor ones.

After the bed is set out we do not touch it until the small weeds begin to show up on top of the ground. This may be two or three weeks as it is cool at this time of the year, and the weeds do not start quickly. Our first work is to go through the bed with either hand or wheel hoe, hoeing a strip in the row about eight inches wide and not over one inch deep.

What is left between the rows is cleaned up with the horse cultivator. I like to hoe first and cultivate afterwards as this obliterates all tracks left by the hoer and leaves a better dirt mulch. This program is carried out religiously once each week all through the season. It may be necessary to have boys go through the bed occasionally and pull the weeds from around the plants which cannot be taken out with the hoe. Along in September, when the rows have spread out quite wide we discontinue the horse cultivator and use a home made spike cultivator and draw it by hand. This is made of a piece of plank about sixteen inches long and eight or ten inches wide. We drive this full of the largest spikes we can get; a strip of board is nailed on for a handle, and is weighted down heavy enough to force the spikes about an inch into the ground. One man can pull this easily and it leaves the ground in fine shape after a rain or after the pickers have packed the last cultivating down.

Cut Off the Buds.

Three or four weeks after the bed is set out the buds and blossoms begin to appear. At this time we go over the beds with a sharp knife and cut off the whole fruit stem. This we do two or three times as new buds and blossoms keep forming. We keep them cut until the 1st of July; after that we leave them to get ready for their crop. Not allowing them to bear up to this time gives the plants a chance to get well rooted and store up energy for the bearing season.

About the middle of August we start picking, just a few at first, but they increase very fast. Weather permitting, we pick our beds three times a week. This is often enough to prevent soft, over-ripe berries. And right here I want to say, nothing will spoil one's market any quicker than letting too long a time elapse between the pickings, as this will mean over-ripe berries which will be rotten by the time they reach the consumer.

I would like to give the results from one-half acre of Progressive ever-bearing strawberries set out in the spring of 1921:

Berries picked and sold in fall of 1921	\$100.00
Plants sold from bed in spring of 1922	110.00
Berries picked from balance of bed, June crop, 1922	250.00
Berries from same bed September and October, 1922	50.00
Total	\$510.00

The weather was unusually dry and hot during the picking season of the fall crops of both 1921 and 1922. With the proper amount of moisture the returns could easily have been doubled.

I have just been reading about a Michigan nursery which has paid \$50,000 for a new ever-bearer. That does not sound so bad for the fate of the Ever-bearing strawberries, does it?

An Interesting Booklet

FRUIT growers can obtain a very interesting booklet by writing to the Fruit Auction Co., 202 Franklin St., New York City. The title of this pamphlet is "More Dollars for Fruit Growers."

This book contains many statistics of great interest. For example, it brings out the fact that nearly nine billion pounds of foodstuffs are required each year to feed the eight million residents of New York City and the 432,000 visitors who come to New York daily. It is also shown in this book that \$1,200,000 is spent every night for dinners in the restaurants of New York. New York is the biggest market we have for American fruits and this book will therefore be of interest to those who like to know how a big city is fed and the systems of handling the fruit through auction channels.

THE California navel orange yield is now estimated at 9,260,000 boxes, which is an increase of a little better than 4 per cent over the early estimates. The lemon pack, it is believed, will run about 4,166,000 boxes, which is a slight reduction from the early estimates.

Crop Report

WE REALIZE that our readers are very anxious to learn all they can about the promised crop at this season of the year. It is unfortunate, however, that the season is fully three weeks late throughout the middle west, south and east, the Pacific Coast being the only section of the country which has an early season. The season in California has been two to three weeks earlier than normally.

The latest figures we can get from Georgia are for about 7,000 ears of peaches. However, at this writing there is considerable dropping taking place and the crop may be materially reduced. North Carolina lost very heavily from frost and freezes. The Elberta crop there is extremely light but other varieties fared somewhat better. Southern Illinois reports a peach crop of about 30 per cent. Southeastern counties of Ohio showed some loss in peaches from frost. The same can be said of Virginia and West Virginia. On the other hand, California shows a very large crop, fully 100 per cent. Apricots in California, which compete somewhat with peaches in canned, fresh and dried forms, are extremely good, in fact, California has the best apricot crop it has had in many years.

Virginia and West Virginia at this time report that there are prospects for a very fine apple crop. Summer apples in those districts were somewhat injured but the main fall and winter apples are now in very good condition. Illinois reports a 100 per cent apple crop in sight, with an extremely heavy crop in western Illinois in the big apple district. Southeastern Ohio reports that its early apples, such as Transparent, Duchess and Grimes, have been materially injured but that the outlook for Rome Beauty at this time is very good, while the outlook for Jonathan is fair. Michigan and New York are not far enough advanced as yet to give a safe report on their crops. The Pacific Northwest has had a very heavy bloom and it looks at this time like a very heavy apple crop throughout all the Pacific Northwest states.

The cherry crop in California is rather light, probably not much more than half the crop. The Pacific Northwest has had a very heavy bloom and prospects there are very promising at this time. The sour cherry districts cannot report this early as the trees are just coming into bloom in the southern districts, while in the northern districts of northern Michigan and Wisconsin, the orchards are not yet in bloom.

California shows a very light prune crop. Reports sent out by the California Prune & Apricot Growers' Association show that there will be a 60 per cent crop, or probably not far out of the way. Some people there report as high as 75 per cent, but there are some that feel the crop will not be over 50 per cent as we all know that considerable drop always takes place and one need not be surprised if the crop of California is not over 50 per cent this year. The most optimistic figures are for 150,000,000 lbs. It is too early to report on the prune crop of the Pacific Northwest as at this writing the crop was not far enough along to give a safe figure.

Grapes in California look to be unusually good and it looks as though all lines of industry depending upon grapes would have all the fruit they could handle. Eastern grapes are not far enough advanced to give a report.

ar enough advanced to give a report. Florida reports about 95 per cent of a citrus crop in sight, about the same percentage as last year. However, at the time we go to press, rain is needed very badly in Florida. The California navel crop is now figured at 9,260,000 boxes, or an increase of $\frac{1}{2}$ per cent, while the lemon crop is figured at 4,186,000 boxes, which is somewhat less than the earliest pre-

Summarizing, we can say that there is going to be on the whole a pretty fair peach crop in the United States, with a bumper crop in California and fair crop in the south and at present



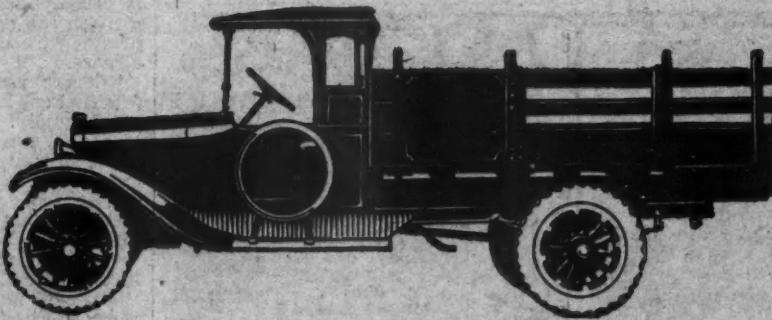
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ent the northern peaches looking promising. The apples in the Pacific Coast will be extremely heavy and so far, the regions which have passed the blossom period, such as southern Illinois, Ohio and the Virginias, on the whole report a very fair apple crop. Should we have no more bad weather, it looks as though the entire fruit crop of this country on the whole will be very good.

Brown Rot

ALL stone fruits are subject to the attack of the brown rot fungus. Peaches, cherries, plums and prunes are all attacked by this disease. The losses at times are very heavy, in fact, the disease may at times attack the trees while still in blossom, on

shortly after, and clean off the entire crop. In many cases the great damage, however, comes just as the fruit is ripening. If the weather is warm and moist at that time, the disease spreads very rapidly. Often the disease will appear in the packages of fruit after they have arrived in the market.

In the numerous spray schedules which we are publishing our readers will find recognized treatment for the brown rot of different fruits in different districts and we urge our readers to follow these directions very carefully. We would say, however, in general way that where orchards are planted on land which has fairly good air drainage and where the pruning is of such a nature that the air can circulate well through the trees

disease is not apt to work as badly as would otherwise be true. Hand thinning of some fruits is also an aid in preventing spreading of the disease. But another method to use in combating the disease is to avoid planting certain varieties which are very subject to the brown rot. There are certain varieties of plums and peaches that are always subject to the disease whereas others are more or less resistant. A study of the varieties in each section of the United States will show which ones should be chosen. Of course there are standard varieties of fruits which will have to be grown commercially, which are more or less subject to the attacks of the brown rot and the only thing to do in this case is to follow the proper growing methods, with good spraying.



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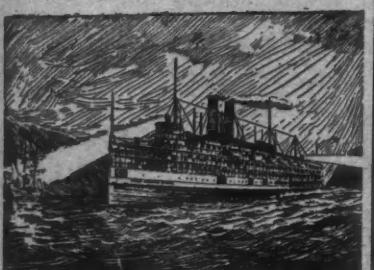
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Control of Pear Blight

(Continued from page 3)

in hope of finding something cheaper than the glycerine formula. Several of these gave very promising results but as only a few cankers were treated with each formula, these and some others will be tried out more extensively in the spring of 1923.

Figure 1 shows a case of new blight treated from a few inches above the ground and upwards on one scaffold branch for a distance of five feet, and a short distance up the other scaffold. Figure 2 shows a case in which the disease had killed the cambium in the upper part of the scaffold but not in the lower. The top was therefore amputated to the side branch and the rest of the canker scarified. These cases were treated in June, 1922, and at the present writing, April 19th, 1923, a new bark has developed over the entire area except in a few small spots where the disease had killed the cambium and where the knife had accidentally cut down to the cambium. Figure 3 shows the method of shaving the bark over a canker.

In this operation, a heavy, long-bladed jackknife is good for use on smaller branches that have not developed the rough scaly outer bark. Some kind of a "scraper" such as an ordinary box scraper must be used for rough bark. A flat file with the point bent over to a semi-circle and sharpened makes a good scraper. A pint fruit jar with wire handle crooked to hang over a branch makes a convenient carrier for the disinfectant.

Depth of Cutting.

The depth of cutting depends upon the thickness of the bark and the depth to which the disease has penetrated. It is necessary to shave inwardly until streaks of healthy, white inner bark begin to show through the discolored and diseased outer bark—thus leaving some diseased tissue for the disinfectants to penetrate and yet not endanger the cambium. Bark thickenings in crotches and around the bases of larger laterals and around old scars and bark depression should be shaved quite deep—say within one-sixteenth of an inch of the cambium layer. In new infections and in the active margins of older cankers it is only necessary to shave down through the green layer as this is the first and usually the chief seat of the disease.

When a person has operated on a few cankers he can then do the work quite rapidly. A case like that shown in Fig. 1, can be completed in thirty minutes, while one like Fig. 2 will require about ten minutes. In operating among roots great caution must be observed that smaller roots are not infected by the tools, and all shavings thrown out of the hole with gloved hands rather than with a shovel, as the shovel may become infected and thus transmit the disease to other roots. The disinfectant must be applied quite thoroughly with a good grade of paint brush—a 1/4 inch brush is a good size. Any accidental stabs whether working on root or branch must be daubed with the disinfectant. The disinfectant is prepared by dissolving sixteen of the half gram cyanide of mercury tablets and sixteen of the bichloride of mercury tablets in one quart of water and adding this to three quarts of commercial glycerine.

Regular Inspection Necessary.

Regular inspection should be made to find the cankers before they get too old because the cambium will generally be killed by the disease after some weeks. Every effort should be made to save the larger branches because when any considerable portion of the top of the tree is killed or cut away, it forces new shoots and suckers to push out below, and these tender growths readily become infected with the disease and thus the whole trunk endangered. Cutting out of diseased twigs should go hand in hand with the treating of the disease (cankers) on larger branches. Experiments are in progress with various other disinfectants to find something more penetrating to get away from

the more careful scarification necessary under the method outlined above.

Growers in other parts of the country wishing to try this method must note that these experiments were tried only with the Bartlett pear and under climatic and soil conditions peculiar to California and that the method may or may not be practicable under all conditions.

Besides scarification, attempts were made during 1921 and 1922 to find penetrating chemicals which might penetrate the outer bark without previous surgery and kill the bacteria in the advancing margin of the canker in the outer bark, and without killing the cambium. Scores of materials were thus "painted" on to live cankers without scarifying and also on dormant hold-over cankers during both summer and winter. Those giving some results were Cresylic acid, silver nitrate in nitric acid, nitric acid, zinc chloride, zinc nitrate, iodine and iodine salts.

Various concentrations of these materials were tried. Possibly the most promising of these is zinc chloride. With trees under eight years of age where a rough or scaly bark has not developed, this material arrested 98% of the cankers treated during the summer and fall and in those cases where the disease had not yet penetrated deeply, the cambium was saved. Fifty-four cankers were treated with the materials in our experimental orchard during June; fifty-two during August and fifty more during the late fall of 1922.

Attempts at scraping off the scaly bark before applying the zinc chloride, did not give results for the reason that the material penetrates too freely wherever the naked bark is exposed. Observation with both this and other materials indicate that the older and thicker the bark, the less the penetration and also that the power of the material to penetrate varies with the season and locality. During the winter time the zinc chloride solution has not penetrated the healthy bark over diseased areas, but outer bark killed by the disease is more readily penetrated so that it may prove useful in killing hold-over cankers during the winter and early spring. Experiments will be continued during 1923 to determine if such a chemical treatment without surgery can be made practical. Growers should keep in mind that the results of these chemical treatments, without surgery, are entirely experimental and should not be used since the details of the method, concentration of chemicals, etc., have not been worked out.

There is need of a great deal of experimental work in the various phases of blight control in California. The control of insects concerned in carrying blight from twig to twig and to wounds in larger branches is a matter deserving more attention.

Orchardists in California are not growing blight resistant pears to any great extent. However, the use of blight resistant roots and trunks and scaffolds is gaining favor in the districts where pear blight is bad. The confines of this article will not permit me to go into this phase of the subject.

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Handling California Peach

(Continued from page 6.)

tables have been used resulting in perhaps an improved pack due to a better opportunity to select uniform sizes. Sizing machines have been little used as yet for peaches in California.

Peaches are packed** in the standard peach box which contains from 18 lbs. to 20 lbs. net. The pack employed is always either the so-called "diagonal" or "off-set" style, never a "straight" pack. Two layers of fruit are used, box shock being obtainable with different heights of ends to accommodate the various sizes.

The fruit is so placed in the box that there is a slight bulge in the center. This bulge in the pack takes care of shrinkage en route and is further assurance that the fruit contained in the package will arrive in good condition. Each individual specimen is wrapped. Small, early peaches are sometimes shipped in plum crates, but it is questionable if the shipment of such small fruit will in the long run prove profitable. After being packed on the ranch the fruit is trucked to the shipping point where final inspection is made just before the packages are placed in special refrigerator cars for the long trip—generally not less than fourteen days—to eastern markets.

Handling for Drying.

Peaches for drying are taken to the cutting shed and there halved and placed cup up on the drying tray. In halving a clean cut is made completely around the fruit and the stone picked out. The pit should never be dragged through with the knife. Women and children are generally employed for this work and are paid on a piece work basis. Various sizes of trays are used, possibly the one to be recommended is the 3'x6', although many like the 3'x8', and others the "one man" tray 2'x3'.

After the trays are neatly filled with the cut fruit, they are piled one above another and wheeled into a sulphur house, and there exposed to the fumes of burning sulphur for periods ranging from two to twelve hours, depending upon the condition of the fruit, the variety and convenience of the workers. Exposures of four to six hours are generally sufficient. The fruit must be sulphured before drying in order to preserve its natural golden color and to aid in the drying process.

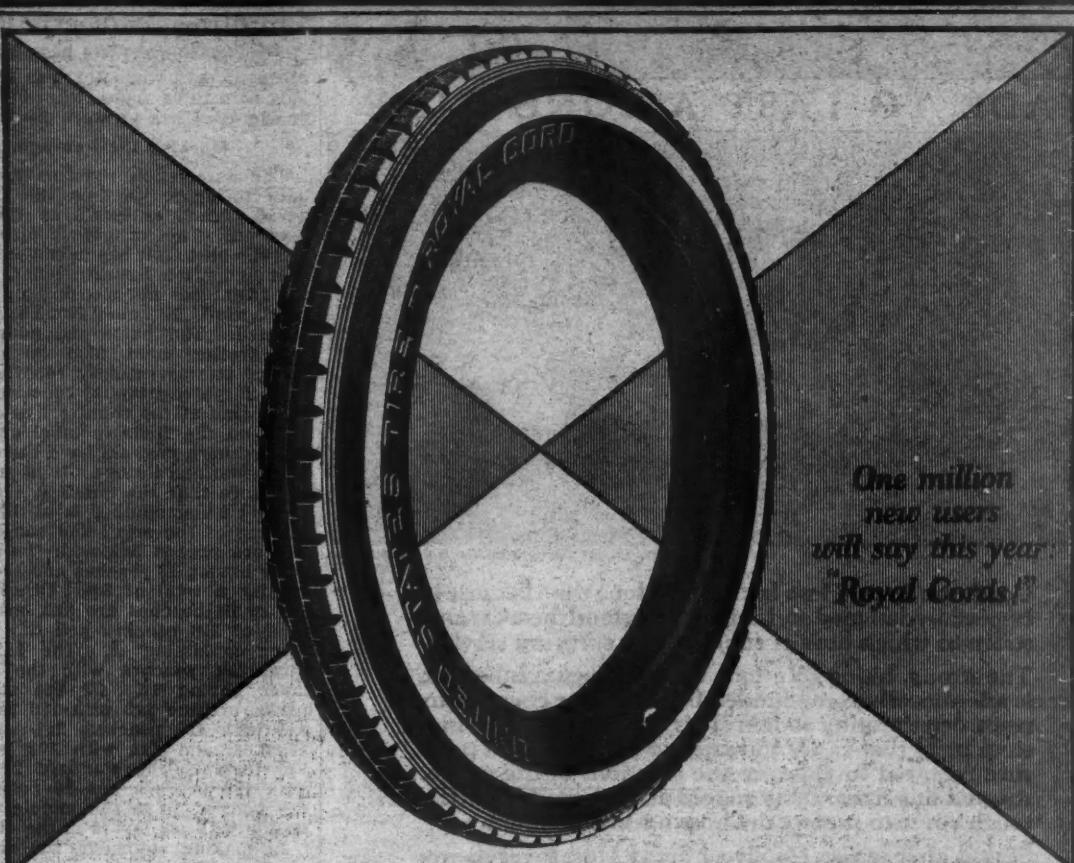
The cups of the peaches as they come from the sulphur house are filled with syrup and must be carefully handled so as not to spill on the trays. This liquid contains much sugar and its loss results in less weight in the dried fruit as well as making the trays sticky. The trays are spread in the dry-yard, and the fruit exposed to the sun. From three to ten days are necessary to complete the drying, depending upon the condition of the fruit and the weather. The drying process should be finished in the shade and for this purpose the trays are "stacked" for the final curing. When fully dry the fruit has a leathery feel and the skin will not slip. It is practically impossible to describe when the curing process is complete. Experience is really the only instructor.

The dried fruit is removed from the trays and put in rather large "sweat boxes" or in bins. Here the fruit is shoveled over or mixed every few days until there is an even moisture content. It is then bagged or delivered directly to the packing house in the sweat boxes. In the packing house the fruit is further processed by steaming, peeling, etc., and is finally packed in the various containers in which it is offered to the market.

*California has set up standards for all fruit shipped and all shipments are carefully inspected for color, quality, maturity, numerical count or weight, etc. Copies of these laws may be obtained from the California State Department of Agriculture, Sacramento, Calif.

**See Calif. Exp. Sta. Cir. No. 241, "Handling California Peaches for Eastern Shipment," by W. P. Duruz, for further detail.

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Early Cherries

CALIFORNIA shipped out its first solid carload of cherries on April 27th. This was nearly three weeks ahead of last year, when the first car was sent out on the 14th of May. The first cars to reach the eastern market sold well and retailers are getting from 35 to 60 cents a lb. for the early shipment. California shippers are very enthusiastic over the cherry market outlook. There is only about one-half a crop of cherries, about the same as last year. Shippers claim that they have more f. o. b. orders than they can fill.

The market for canned sweet cherries on the Pacific Coast is remarkably strong. The Pacific Northwest, which now reports a good crop of

cherries, has been selling freely to the canneries for 9 to 9½ cents a lb. Some California growers are reported to have received as high as 10 cents a lb. for some of the canning cherries and there is a belief that some sales may reach nearly 11 cents. With such high prices for canned sweet cherries, it would seem that the price for sour cherries in the East ought to be relatively good. However, the reports come that some eastern canneries have sold cherries at relatively low prices, which would mean around 5 or 6 cents to the growers. It is generally believed, however, that not very many sales of this nature have been made, and it would seem that with the prices now being received for sweet cherries, the sour cherry market would be ma-

terially strengthened, especially since the cherry crop is short.

A Good Nectarine

NEW YORK Agricultural Experiment Station believes that more nectarines should be grown in New York and similar states. They are recommending the Hunter, a variety developed by the experiment station. The trees of this variety are described as being large, vigorous, hardy, healthy and productive. The fruit is said to be large, handsomely colored and very good in quality. It is believed that this nectarine should be grown in all the home orchards and might have good commercial possibilities if planted on a small scale.

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GOOD YEAR



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Handling Southern Peach

(Continued from page 5.)

are used, and when there is an extra long haul to be made either by freight or express, some growers use hooks.

Marking the Package.

The association requires its members to mark whether the fruit is 2x2x6, 3x2x6, or 2x1x6 as the pack may be. The variety is also given and the best fruit has in the past been sold under the Redskin label. When the fruit does not measure up to the label, the U. S. Fancy No. 1 is always omitted. The name and address of the grower must also go on his crate. It was recently reported that some large commercial concern in another part of the country has a copyright on the Redskin label and that the southern growers have been asked to discontinue its use. It is probable therefore that the Sandhill crop will be sold under another label this year.

Some of the small and early varieties are packed 3x3 with the bottom layer having 18 peaches and the crate holding a total of 306. Other packs for small peaches are 3x2, making a total of 258 peaches and the bottom layer containing 15. The 2x2 pack gives 204 peaches with the bottom layer having 12. Of the standard packs, are the 2x2 with 180 peaches; 2x1 with 162 peaches, 2x1 with 138 peaches, and 2x1 with 108 peaches. For instance the standard 2x2 pack with 180 peaches has 10 peaches at the bottom, 10 in the middle and 10 on top with six layers in the crate.

In making shipment, the standard

properly and lacks that delicious flavor which characterizes the best southern peach.

The leading orchardists, the agricultural workers and the marketing division of the North Carolina State College and State Department of Agriculture are striving to show the importance of harvesting when the "hard ripe" stage is reached. This has proven best for distance shipments. When the green color of the underside has just changed to a creamy white, the peach is ready to be picked for the long distance shipments. At this time also the fruit will readily separate from the tree. During rainy weather peaches look riper than they are and pickers during such times must be closely supervised. Care in handling so as not to bruise the peaches is another important item. As soon as harvested, the best growers find that it pays to place the fruit under a shade and that the quicker it can be hauled from the orchard, using care of course, and is graded, packed and placed in the refrigerator, the less will be the losses incurred.

Ordinarily it requires from two to six pickings, as peaches even of the same variety ripen very irregularly. The usual practice is to go over the orchards about once every two days, except in warm weather when picking should be done daily.

Concerning handling the southern peach crop Mr. Gorrell Shumaker, acting chief of the Division of Markets, says:

"The central packing house or tent needs ample grading tables to facilitate rapid and efficient work. The



Hauling peaches to car.



Collecting peaches in orchard.

car is 32 feet and 6 inches, holding 476 crates. These are packed in 16 tiers, seven tiers being on each side of the door with two back ones, all five crates high. The others are only four crates high. There are seven crates from side to side of the car. The cars are re-iced only when held over one day and about a ton of ice is used per car. The pack manifest is put in the cars showing the varieties and number of crates and whether the pack is a 2x1x6 layers, 2x2x6 layers, or whatever pack is used.

Wages Paid.

The association price for packers includes the transportation fare one way and \$21 per week with board and lodging. The limit to railroad fare is \$35. In some cases the transportation allowed may include both coming and returning to the home town. The graders are mostly local help and receive from \$2 to \$3 per day. The pickers are all local help and are paid at the prevailing wages in the section. The inspectors of sheds received last season \$30 per week, but most of the larger packing sheds have a manager also. With the smaller sheds, the inspector acts as manager. A general inspector from the association generally visits each shed daily if possible.

Throughout the whole process of getting southern peaches on the market, one of the most important things in the South is a good knowledge of the proper time to pick the fruit. This, it has been found, comes largely through experience. For nearby canneries or sales, the fruit is allowed to become full ripe and therefore reaches its highest flavor, but for distant shipments this will cause the fruit to become too soft to carry well. It has been found that the chief fault with southern peaches is that many of them reach the markets in mediocre condition because of being gathered when immature. In such cases the fruit will shrivel without ripening

tables need to have a burlap or canvas top so fastened as to slope slightly towards the side of the table at which the packer stands. Shelves should be provided upon which to place the crates or baskets and these should be so placed as to make the top of the crate or basket come just even with the side of the bin. Usually the sizing and grading operations are performed by hand assisted by the eye, though some growers use the sizing machines. Over-ripe peaches, those with skin punctures or bruises, or any showing signs of decay, should be graded out of all shipping stock. Wormy peaches have no place on any market."

And so the peach of the South is finding its place in the world. Down here the climate is warm and kind. The sun's rays color the upper side of the fruit and the reflection from beneath generally gives a warm blush that makes pleasing color all over. This, in addition to its innate goodness, makes it top the market.

Evaporated Apples

FORMALLY about 2,500 cars of dried apples were produced annually, requiring from 10 to 12 million bushels of apples. This past year, however, despite the fact that the crop was big the portion evaporated was relatively small, being only 1,600 cars, or 48,000,000 lbs. California has become the leading state in the production of the dried apples. In former years there was a heavy export of dried apples which has been only light the past year and is much less than that normally exported before the war.

There are other factors which influenced the output of evaporated apples. High labor costs and a large pack of canned goods were important items. Also the very heavy crop of prunes, raisins, figs and other dry fruits limited the market to a certain extent for dried apples.

Reasons for Thinning

(Continued from page 4.)

stems of the apples removed. This is a protection to the thumb, but is cumbersome and slows down the process of thinning. The writer prefers to use his thumbs and fingers. Short stemmed apples may be removed by breaking back the stems. Occasionally the apple left may drop from having all the stems broken back from around it, but usually too many apples are left anyway, so the loss from this source will not be noticed. When thinning the long stemmed varieties, grasp the stem between the thumb and first finger, the apple in the palm of the hand. A slight pressure with the second or third finger pulls the apple off the stem. This is easier and faster than breaking back, as the long stemmed varieties do not break as readily as the short stemmed varieties do. A little practice will give speed with either hand, so that one man will remove more apples this way than will two men with shears.

To sum up the reasons why apples should be thinned:

Since it is the seed of the apple that exhausts soil fertility, proper thinning will conserve soil fertility over a longer period of tree life. Proper thinning keeps the tree normal over a much longer period. Proper thinning will not reduce yield. Proper thinning will greatly increase the percentage of Extra Fancy fruit. Proper thinning will reduce Fancy, C Grade, Jumbos and culls. Proper thinning assists in the fight against the Codling Moth, since having broken up the clusters and having no two apples touching, it is an easy matter to cover the apples with spray. If two apples are touching, it is impossible to get spray between the apples and it is here that the worm makes an entrance to the apple. Proper thinning reduces the expense of picking, sorting, packing and the paper bill. Proper thinning makes possible the greatest amount of color, as well as the greatest uniformity in shape and size. Proper thinning encourages annual bearing. If a tree is never permitted to overload it will be more likely to have a full crop each year. Proper thinning will result in obtaining top prices.

Thinning Apples

by Gordon G. Brown

DURING the 1922 season the writer had occasion to study the influence of thinning Ortley apples under Hood River conditions. This is a subject on which there is not a great deal of definite information, but the merits of such a practice are widely recognized in all up-to-date fruit growing sections. Western boxed fruit sells strictly on its merits, chief of which is uniformity and good sizes. The block of trees on which thinning was practiced, consisted of Ortleys, eleven years of age. The trees are growing on a fairly fertile soil and good soil management has been the rule. Nitrate of soda at the rate of 3 pounds per tree was used in the early spring of 1922 and a crop of Hairy Vetch was seeded for green manure purposes. The trees are very uniform in size and bearing capacity. A heavy bloom occurred on all of the trees. They were divided into four blocks representing different methods of thinning. Fruit in Block 1 was thinned to 4 inches apart; Block 2, 7 inches; Block 3, 9 inches; and Block 4 received no thinning and served as a check. Apples were quite large on June 12th when thinning was done, the fruit averaging approximately 4½ inches in circumference.

At harvest time the yields were tabulated in loose boxes per tree, Block 1 showing an average of 21.5 boxes per tree; Block 2, 16.1; Block 3, 15.50 and Block 4, 17.66. Thinning to four inches, as will be noted, resulted in increased yields. Seven and nine inch thinning resulted in slightly decreased yields as compared with the unthinned block.

Sizes were tabulated on the basis of 4 tier and larger per box; 4½

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Illinois Experiment Station Circular No. 233 says: "It has been amply demonstrated that Nitrogen is usually the controlling element in apple production." Also "Nitrate of Soda has come into the widest use for orchard purposes and has sufficiently proved its value in many experimental and commercial orchards to warrant a rather general recommendation of its use in unproductive orchards."

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tier; and 5 tier and smaller. The seven and nine inch thinning resulted in a very high percentage of 4 tier apples, these being 59.8% in the former case and 66.1% in the latter. It is interesting to note that even a four inch thinning exerted a very helpful influence on sizes. In this instance these were only 4.6%, 5 tier and smaller as against as much as 55.8% in the case of the unthinned block.

A study of the appended chart indicates that there is a practical relation between yields on the one hand and sizes on the other. Obviously a decrease in the yields is to be avoided, but increased yields obtained at the expense of small sizes is likewise a disadvantage. The trade appreciates apples which may be classified as 4½ tier and larger. In the case of trees

thinned seven inches, apples were inclined to be somewhat irregular in firmness. Very often an open-cored apple resulted from such thinning. Fruit of this character as a rule was more mature and less firm than some of the smaller apples. The result of this test would seem to indicate that with very vigorous young trees, seven inch thinning is the most practical distance for thinning. Largest yields, consistent with best sizes are the result. There is no orchard operation that pays better than thinning.

THINNING ORTLEYS, 1922.

Thin'd.	Loose Boxes and Plat. Ins. Per Tree.	4 Tier Larger	5 Tier and Smaller
1	4	21.56	7.14
2	7	16.1	59.85
3	9	15.50	86.1
4	None	17.66	41.9
		2.29	55.81

Apple Activity

IT IS reported that there is considerable activity in the Pacific Northwest, especially in the Wenatchee district, regarding the signing up of contracts for the 1923 tonnage. There is also a movement to start a new central sales agency to handle the apple crop of the Pacific Northwest. Portland and Hood River interests are very active at the present time fighting this sentiment. It is believed that the experience in the past year has shown that the marketing machinery of the Pacific Northwest is inadequate to meet the situation.

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HYDRAULIC CIDER PRESSES

Orchard Problems and their Solution

by Paul C. Stark
Associate Editor

When to Plow the Orchard

My young orchard just coming into bearing is in clover. Other years I have waited until the clover dries up before plowing it under. Would it be preferable to do this again or turn under the clover when it is still green? J. M. W., Alabama.

ASSUMING that the clover you grew in your orchard is for the purpose of increasing the fertility of the soil as well as being used as a cover crop, you will get the greatest benefit by turning it under at an earlier date. A greater amount of humus is added to the soil when the clover crop is turned under early in the season, and this is also the time when the greatest good can come from cultivation. Most of the rainfall comes as a rule in the early spring and if the plowing is done before dry weather sets in, the moisture can be conserved for the trees rather than being used by the clover crop.

Early spring cultivation in many respects accomplishes the same results as making an addition of nitrate fertilizer, since it tends to stimulate the nitrate's formation in the soil by its influence on soil bacteria. The trees should be given the most favorable conditions for growth in the early part of the season and then checked in the summer by stopping cultivation and the sowing of a cover crop.

Use of Dry Spray Chemicals

Can you tell me if the dry or powdered form of Lime-Sulphur is as good as the liquid? Also what is your opinion regarding powdered Arsenate of Lead in comparison with the paste? G. E. W., Indiana.

DRY chemicals have come into general use during the last few years mainly on account of economy in transportation. They have met with general favor among the fruit growers, although many still cling to the use of the old forms.

Dry Lime-Sulphur has not been used to as great an extent as might be expected. In the first place, some growers claim it doesn't always stay in solution quite as well as the liquid, although this has been largely remedied by the addition of the Casein spreader. We have used the dry form with good results in our young orchards.

Powdered Arsenate of Lead has now almost totally replaced the paste, although there is a tendency in a few sections to return to the paste form of this insecticide. The powder is dissolved in water at half the amount required for the paste and with proper mixing together with the use of spreader it has given results which have been entirely satisfactory.

Over Stimulation

Some of our varieties have been slow to start bearing and we would like to get any information you can give us as to how to correct this. Most of the trees are on good rich ground and have been well cultivated and fertilized. They have made very good growth, but we can not understand why they are not bearing earlier. J. L. L., Pennsylvania.

YOUR description of these trees indicates that you have over-stimulated them at the age when they should start bearing and the energy of the tree has gone into making wood growth rather than forming fruiting buds.

Over-stimulation may have been accomplished by giving the trees too much nitrogen in the way of fertilizers or by too much tillage. Heavy winter pruning will also tend to keep trees in a vegetative condition after they have reached the age at which they should normally begin to produce commercial crops of fruit. Such

trees should be checked in growth so as to throw them into bearing. This may be accomplished by various treatments. Cultivation should be discontinued early in the summer and a cover crop sown. The addition of fertilizers may be omitted, and on very rich soils the orchard may actually be left in sod for a year or two with good results. Narrow ringing is another method sometimes employed to bring trees into bearing, but usually this is not necessary or desirable when the other details of orchard management are well handled. Ringing is rather drastic and must be handled very carefully to prevent permanent injury.

Controlling Borers

Last year I lost a number of my trees from borers. They seem to work just underneath the bark of the tree down close to the ground. What is the best method of control of the borers? G. R. Y., Illinois.

IN YOUR state April or May is probably the best time to cut out borers although trees gone over in June will catch many of them. Another important time to cut borers out of trees is in late August when the young borers have just hatched and their location can be easily found by looking for small dark spots on the bark. Use a sharp knife and do as little cutting as possible to get the borer. A pliable wire is also effective in many cases.

Methods of Cultivation

I have a five-acre clover field one year old in which I have just planted a young apple orchard. I am undecided as to the best way to cultivate this field. The land needs building up and I would like to grow the clover and turn it under later, but don't want to check the growth of the trees by lack of cultivation. Please give me your suggestions. A. L. R., Missouri.

THERE are two methods that you can follow with good success—first, you can hoe about the trees in 4 ft. circles, but this will require considerable labor and the trees will probably not be cultivated as often as they should be. Another plan is to cultivate in strips on each side of the tree, the total width being about 6 to 8 ft. By using one-horse cultivators, you can keep the ground worked up in good shape so that you can get a good growth on trees even in dry weather. I have followed this method with very good success. This year I am cultivating in wider strips—about 6 ft. on each side of the tree row and using a tractor with a double cutting disc. In this way one can get over a large acreage in a short time and can keep the ground worked up in a loose dust mulch. In the summer months I intend to tie a light drag on behind the disc so as to cultivate and drag the soil into a fine dust mulch in one operation.

Controlling Aphids

In spraying my trees I have been using Lime-Sulphur and Arsenate of Lead, but this does not seem to get the little green bug on the end of the twigs. Please advise me what is the best mixture to use for this pest. P. T. K., New York.

THE Lime-Sulphur that you are using controls the scab and fungous diseases while the Arsenate is a stomach poison that kills the chewing insects such as Codling Moth, Canker Worm, etc. The green bugs you mention are Aphids. They are sucking insects and as they do not chew, must be killed by a contact insecticide. To the Lime-Sulphur and Arsenate of Lead mixture which you have been using, add a tobacco extract such as Nicotine Sulphate.

The Ideal Orange

THE citrus industry has been developing at a great pace helped on by considerable capital investment in storage dams and irrigation canals, with the promise of side lines in the manufacture of marmalade and beverages. Suddenly doubt appears, like a cancer, to check the progress and probably divert the attention of those attracted by the development to other fields, in say Florida or California. The doubters shy at the number of trees, at the wrong sort of trees, at the danger of over-production. We recall the experience of an enterprising Paarl orchardist who had planted out 1,500 olive trees and who advised his neighbors to follow suit. "What," they said, "after you have planted 1,500 trees? Why you have overstocked the market." In vain Mr. Tribolet said he had seen, we think, 200,000 olive trees in one plantation on the Mediterranean, and that the world could not get enough genuine olive oil. The 1,500 trees were held to be sufficient to meet the demand. So with oranges. The United States in 1915 produced 21,200,000 cases of oranges at the farm value of 10s. per case and a total of £10,012,000, and in 1916 raised those figures to 23,835,000 cases at a farm value of 10s. 8d., and a total of £12,056,000. The consumption was equal, it will be seen, to the increased output, and the increased output of 2,635,000 cases exceeds the present South African output, and is likely to exceed the output for some years. Australia in 1914 produced 1,342,778 bushels of oranges worth £497,283, and in 1919 produced 2,209,395 bushels worth £1,151,187 or more than double in five years without, as far as one can see, overstocking the market. In 1921 South Africa exported 231,397 cases worth £198,410, but the gloomy statement is made that the quantity exported may actually approximate a million cases in a short time or 1/23 of the American output and not half the present Australian yield, when the market will be overstocked! It is sheer nonsense. And the same term applies to the kind of orange. Our planters are supposed to have gone crazy over the navel, which is the orange preferred by the market; and to have neglected the seedling, which has its qualities but is not preferred by the markets. Statistics for 1920 do not, however, tell of the extinction of the seedling:

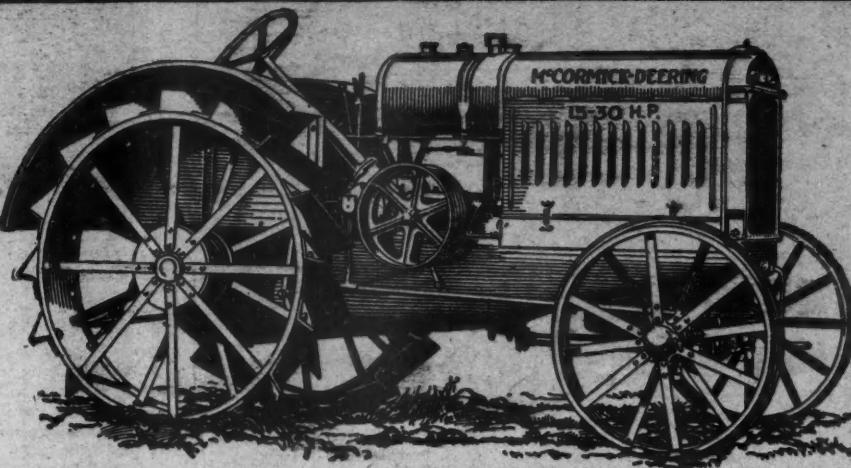
Navels (bearing)	414,970
Navels (non-bearing)	540,770
Seedlings (bearing)	280,700
Seedlings (non-bearing)	66,670
Naartjes (grafted)	109,850
Naartjes (seedling)	213,450

There were flourishing groves at Oudtshoorn and in the Eastern Cape 50 years ago, and after returning much profit they were seriously damaged by crown rot owing to wrong methods of watering, and the introduction of the navel orange led to very much improved methods of culture which will in time remove defects. As was inevitable, weak trees were planted exactly as they were planted in California, where they are known as slackers. In California the "slacker" is "gone over"—in other words, it is cut back and grafted anew from buds taken from a strong mother tree. The same process is going on here, and as Mr. Simmonds, the well-known horticulturist, informed us, the knowledge of stocks and their treatment is here well in advance even of California methods. There is one point on which there may be some doubt. We have it on California opinion that the life of a navel is 30 years, while there are old seedlings, which survived crown rot, of greater age; but the wise planter will renew his grove gradually. On the whole there is no cause for doubt either as to the world's consumption or on the commercial excellence of the navel.

The Ideal Orange

(From our own correspondent)

I HAD an interview this morning with Mr. C. P. Lounsbury, Chief of the Division of Entomology, who, returning from an American trip, broke his



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DON'T underpower yourself when you start tractor farming. Our dealers can sell you a 10-20 h. p. McCormick-Deering Tractor, but more than likely it will be far more practical to invest in the husky 15-30 h. p. size. Underpowering is a common mistake made on the farms today. If you could take a general canvass among tractor owners you would be surprised at the number who admit, "I ought to be pulling another bottom," or, "I can't touch that size belt machine," or, "I didn't realize how many more jobs I could have handled with a little extra power."

Don't make that mistake. Remember that when it is a McCormick-Deering Tractor you take home you are making a power investment to hold good for fifteen or twenty years, if you give it just ordinary good care. Be ready for all sorts of drawbar and belt power demands that will come along from now on. The extra power will pay for itself over and over again.

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All these details and other features are built into the up-to-date tractor pictured above, and it is backed by McCormick-Deering quality assurance. You will agree that here is a practical farm power unit worth your close study. Stop at the McCormick-Deering dealer's store and get acquainted with the McCormick-Deering 15-30 Tractor.

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Journey here to spend a couple of days at the Grootfontein School of Agriculture to consult with the principal and the entomologist concerning the important sheep maggot fly investigations being carried on there.

He and Mrs. Lounsbury travelled many thousands of miles in the United States, visiting universities, agricultural colleges and high schools. He took part in an important congress at Washington, where the prohibition was suggested of the importation of all fresh fruits from countries where fruit fly occurs.

I invited him to express an opinion on the orange controversy. He replied that as his line was entomology and not horticulture he was reluctant to do so, but having during the trip been to California and Florida, where he visited orange areas, he could only state he was in full accord with the official statement issued by the Department of Agriculture. He was very sorry that acrimony had been introduced into this discussion, but thought good might arise, as there was certainly a need for much further experiment, and in the light of American

experience a watch should be kept for strains of oranges that will be more profitable than those now grown.

A Terrible Mistake.

It would be a terrible mistake for South Africa to turn from the Washington navel, however, until it was proved that another orange was more profitable over a considerable period of years. It certainly would not do to rely on seedling fruits, although it was very likely that one or more South African seedlings propagated by budding would make excellent market varieties.

The chief commercial varieties of Florida are seedlings or "bud sports." That originated in Florida itself, and under these circumstances he views the controversy somewhat in the light of a storm in a teacup. He felt that South African growers were safe in relying on the advice of the Division of Horticulture.

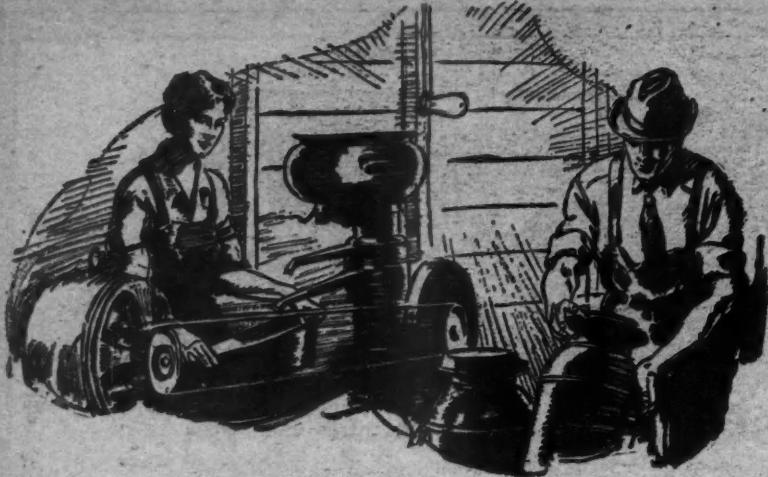
The two statements on the Ideal Orange as copied from "The Star," Johannesburg, Transvaal, show what South African orange growers are interested in.

Splitting Bark

BARK will sometimes split on fruit trees following cold weather in late winter and early spring. Where there is just a tree or two, wrap the tree with moist burlap, but where there are a large number of trees, showing considerable bark cracking, it is well to tack the bark to the body of the tree with large-headed tacks, such as billboard tacks. This will keep the bark from rolling back and drying.

Shot Hole Borer

SHOT hole borers make holes in the branches of trees, these having the appearance of holes made by buckshot. There is little that can be done to combat this pest other than getting the trees into a good healthy condition. This insect rarely attacks a tree which is healthy and strong. It attacks a tree which is weakened or diseased. Fertilize, till and prune a little more to get the trees into better condition; cut and burn badly infested branches.



The Electrified Farm

EXTENSION of electric light and power to the six million farms of the country will be one of the chief subjects discussed at the National Electric Light Association meeting in New York City in June, to be attended by several thousand men and women of the electric industry from all parts of the country.

Great progress toward the ultimate solution of the problem of extending electric service to the farms will be reported. A national committee from the industry has been working in cooperation with officers and similar committees of farmers' organizations, and with the U. S. Department of Agriculture.

Through this cooperative work the electric light and power companies hope to be able to overcome obstacles which in a vast majority of cases today make electrification of farms impracticable and uneconomical.

Development of a network of wires interconnecting generating stations and distribution systems is a fundamental necessity before general farm electrification may be expected without prohibitive cost of construction and resultant high rates. Already hundreds of electric light and power company systems have been interconnected, thus bringing one step nearer the complete electrification of farms within the territories served.

Cooperation between the electric light and power industry and agricultural communities and associations—with constructive legislation and state-wide regulation—will hasten farm electrification.

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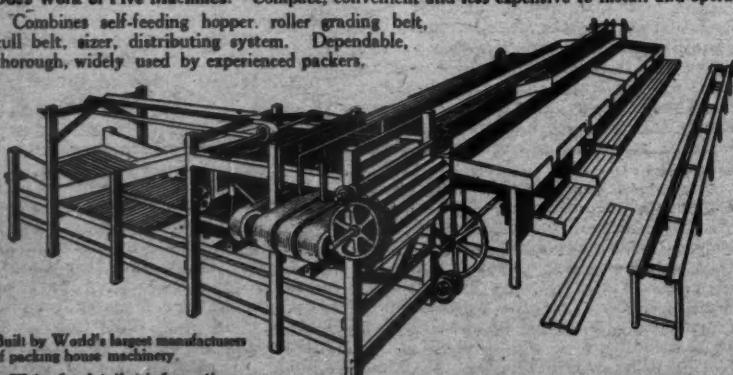
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DR. J. H. ROSS, president of the Florida Citrus Exchange, in a recent address estimated that the total business in citrus fruits in Florida this year would reach the figure of \$105,000,000, for some 14,000,000 boxes of fruit. Of this amount, over \$55,000,000 would remain in the state of Florida. After all charges are deducted, such as sales cost, advertising, taxes, picking, hauling, etc., a sum slightly in excess of \$25,000,000 would be left in the growers' hands. The itemized statement of this crop will be of interest to our readers and is as follows: (The decimal figure is the cost per box for each of the various items of expense.)

CROP VALUE TO FLORIDA.		
Nails, straps, strips...	\$0.0200	\$ 200,000
General expense .....	.0250	375,000
Crates .....	.2500	2,750,000
Labels and paste .....	.0075	112,500
Light and power .....	.0100	150,000
Paper .....	.0875	1,312,500
Labor payroll .....	.1475	2,212,500
Auto expense .....	.0100	150,000
Salaries .....	.0600	900,000
Repairs .....	.0100	150,000
Int. inc. taxes .....	.0275	412,500
Depreciation reserve .....	.0650	975,000
Production .....	.7750	11,025,000
Picking .....	.0650	975,000
Hauling .....	.0750	1,125,000
Freight (in Florida) .....	.2500	3,750,000
Selling cost .....	.1334	2,001,000
Advertising (in Florida) .....	.0016	24,000
Growers' net	1.6700	28,050,000

Total to Florida... \$3,6900 \$ 55,350,000

VALUE OUTSIDE FLORIDA.

Advertising ... \$0.0600 \$ 900,000

Freight9000 12,500,000

Wholesalers' profit ... 4,600 6,900,000

Retailers' profit ... 1,8900 28,350,000

Total outside Florida... \$8,3100 \$ 49,650,000

Grand value crop... \$7.00 \$ 105,000,000

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Total outside Florida... \$8,3100 \$ 49,650,000

Grand value crop... \$7.00 \$ 105,000,000

THE CALIFORNIA Prune & Apricot Growers' Ass'n, has recently expelled a number of members because it was felt that they were a detriment to the organization and should therefore be relieved of their membership. This is an interesting step in co-operation. Quite a number of co-operatives have in their by-laws provision for the expulsion of any member when it seems to the best interest of the organization that such a member be expelled. Some organizations are considering releasing members who are dissatisfied. It is questionable whether this is a good practice unless these members are of a type which will never really co-operate. To release a member simply because he has a minor grievance or is somewhat dissatisfied with the first showing made by a co-operative under difficult conditions is a step which should not be taken without very serious consideration.

WESTERN N. Y. Fruit Growers' Co-operative Ass'n, Inc., is publishing a series of very clever booklets. These booklets introduce John Green and Timothy O'Shane, neighboring fruit growers somewhere in western New York. John is a member of a co-operative packing association and Tim, though not a member, is much interested, and asks some leading questions. The figures and statements which John uses in his replies are authoritative information from the central office. The four booklets which we have received up to date are entitled "Trimmin', Sprayin' and Sich," "Packin' Costs," "Financin'" and "Responsibility and Compensation." We would suggest that managers of co-operative bodies write to the Western N. Y. Fruit Growers' Co-operative Packing Ass'n, Inc., 50 Triangle Bldg., Rochester, N. Y., for these booklets. The general manager of this organization is Nelson R. Peet. Sometimes the very best co-operative propaganda can be put across in a rather indirect way, such

as the booklets described handle their various subjects.

THE Sun-Maid Raisin Growers have been successful in their refinancing campaign, \$2,500,000 worth of new stock having been disposed of. Growers of raisins and others of the San Joaquin Valley responded very nicely, and, in addition, banks of San Francisco and Los Angeles rendered their assistance. With the new reorganization, devised by Managing Director Merritt, the requirements of the Capper-Voistead Act have been met. It is believed that the new type-of organization taken up by the Raisin Growers will serve as a pattern for other co-operative marketing organizations throughout the United States.

ACCORDING to figures gathered by the United States Department of Agriculture, it is shown that the Grand Traverse Packing Co., of Traverse City, Mich., this past season handled 1,200,000 lbs. of cherries and was able to pay the farmers 10 cents a lb. at their own farms. All the profits were used for dividend purposes.

In addition to the large amount of cherries which were canned, a very large tonnage was frozen and barreled. The total amount was about 4,000,000 lbs. of cherries.

CALIFORNIA Fruit Exchange, with headquarters at Sacramento, have 4,500 growers now members of the Exchange. They did a business this past year amounting to \$13,046,775.84, being an increase of over \$300,000 over the previous season. A total of 8,560 cars of perishable fruits were handled. This fruit was sold in 265 markets and 64 per cent was sold at auction, the remainder in private sales. The Exchange made a fine record this year when it is considered that the crop was big, there was a serious car shortage and buying conditions in the country were not good.

OWING to the work of the Florida Citrus Exchange, Florida for the first time has obtained a national distribution of its citrus fruits. Florida oranges were shipped as far west as Seattle and were well distributed in the provinces of Canada. The Exchange this past year sold the fruit in 55 more markets than the previous season. The wider distribution resulted in a greater stability of the orange market.

THE California Almond Growers' Exchange has shown a steady growth from the beginning. The Exchange now has 2,998 members, which is an increase of 531 grower members over June 1st a year ago. Last season the Exchange handled 5,743 tons of almonds, which were sold to 2,493 wholesalers in 609 cities of the United States. The sales brought in \$166,000 in excess of the basic price made by the growers last fall. The organization now has property valued at \$1,328,000, with no liabilities. The gross sales this year were in excess of \$2,000,000. This organization is very ably managed by T. C. Tucker.

LOGANBERRY growers of Oregon and Washington figure that they have 14,000 tons of fruit to market this year. A special committee of growers and members of the Chamber of Commerce of Portland is now at work to develop a good marketing plan for the handling of such a heavy tonnage. It is reported that some sales have been made at about 5 cents a lb. Growers feel that they should obtain 5 or 6 cents a lb. if they are to make money.

New Varieties

THE New York Experiment Station at Geneva, N. Y., is recommending a number of new varieties of fruit. The Wilma peach is a yellow-fleshed peach which follows nicely the Elberta. It is a seedling of the Elberta and originated in 1911. The trees are vigorous and productive and hardy enough to withstand the coldest winter recorded in the last half century. The fruit is said to be as large as the Elberta, about the same color, a little rounder and of better quality. Its chief value in New York is that it ripens a week later than the Elberta.

The Chase sour cherry is believed by the Experiment Station experts to be better than the Morello cherry now being raised. The trees are said to be larger, healthier, more spreading, and the branches do not droop as do those of the Morello. The leaves are larger and the fruit is better distributed. The cherries are said to be larger and possess the same dark color and shape of the Morello, except with a deeper cavity. The fruit ripens a little earlier, is milder in flavor and pleasanter to eat out of the hand than the Morello.

The experiment Station has brought out a new Spy, known as the Red Spy, which is identical to the Spy in every respect except that the fruit is red. Scions were obtained from a Mr. Green of Victor, N. Y., in 1910. These scions are now fruiting and are of much interest. It comes into bearing late like the typical Spy. The fruit has a very fine quality, is beautiful to look at, and the tree is hardy, healthy and productive. Like the typical Spy, the tree will probably be long-lived. It blooms late, thus escaping many of the spring frosts.

The Modified Leader Tree

FRUIT growers who believe in the modified leader tree will be very much interested in Bulletin 354, written by R. H. Roberts of the Wisconsin Experiment Station, Madison, Wis. The bulletin is very clear, is nicely illustrated, and the author shows that he has made a very careful study of this subject. He has taken the ideas that were first brought out at the Oregon Experiment Station and has shown their adaptability to middle western conditions. The following digest of the bulletin will be of interest to our readers:

The modified leader tree is better than either the central leader or open center types. It bears better crops of fruit. It is not a "double deck" tree. Plant one-year-old nursery trees. They usually grow better and this should mean better fruiting. Prune the tree at planting time. Reduce the top in proportion to the root pruning done when digging. Start to form the tree-head the first year. This avoids much trouble in later years. Avoid weak crotches by unequal heading of branches. Keep the branches balanced-up by proper heading back. The two-year tree should be carefully pruned. Properly pruned trees start to spread at this age. Tall narrow trees can be prevented. Careful attention in the third and fourth seasons may prevent excess height and density of top. Open center trees can be changed into modified leader trees. This should not be attempted after the third to fourth year. Wind-beat trees may be straightened up. Prune lighter on the windward side. Avoid heavy cutting after the fourth year. This tends to delay fruiting. Dense topped trees are late in bearing. A certain type of early summer pruning may help this trouble.

The Oldest Apple Tree

by Frederick I. Bartlett

WHAT is believed to be the largest and oldest apple tree in the world is located in Patrick County, Va., about six miles from Stuart. The tree is 120 years old, 12 feet in circumference at the trunk, 60 feet high, 70 feet spread of branches, and has a record of 123 bushels of apples gathered in one season.

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The FISK NON-SKID CORD is unquestionably the master of cord tires of standard dimensions. The highest quality of cord tires made, it gives remarkable extra service in any locality—and it does not ask you to pick good roads to drive on.

Price the same as other standard cords—value enough higher to deserve the Fisk reputation.

The FISK PREMIER CORD, a good tire of somewhat lighter weight, is built to meet competition and there is none better in its class. It is a Fisk product and like other Fisk Tires gives more than one has a right to expect for the money.

There's a Fisk Tire of extra value for every car, truck or speed wagon



The commercial apple belt of Virginia is one of the finest in the world, and this record tree is one of the outstanding features of the orcharding interests in that section of the state. The largest Winesap apples ever grown were raised on the Stuart orchard. The apples were 13 inches in circumference and are modeled in wax in the United States Department of Agriculture. On this farm in 1914, 32 barrels of apples were gathered from one tree after a severe storm had blown off many bushels. A number of other farms have trees that have borne 25 barrels each.

The oldest apple orchard in the United States is the Taylor orchard, 8 miles east of Stuart. The orchard is almost 100 years old, and in many instances individual trees have borne 100 bushels of apples in one season. One tree adjoining the Atwood orchard bore 175 bushels in one year, and in two successive years an aggregate of 238 bushels.

Samuel T. Maynard

PROF. Samuel T. Maynard passed away at his home in Northboro, Mass., on March 31st, at 78 years of age. Prof. Maynard is very favorably known by horticulturists all over the United States as he is the author of a number of books, such as the "Practical Fruit Grower," "Landscape Gardening," "Successful Fruit Culture," and "The Small Country Home."

From 1875 to 1902, Prof. Maynard was professor of horticulture at the Massachusetts Agricultural College. He had a remarkable knowledge of varieties and was a most excellent grower. Under his management the

orchards of the Massachusetts Agricultural College were very productive and the campus was one of the beauty spots in the state. All who knew Prof. Maynard came to love him. His quiet disposition, his calmness and balance and his personal interest in his students endeared him to all who knew him. The Managing Editor of the AMERICAN FRUIT GROWER MAGAZINE feels keenly the passing of Prof. Samuel T. Maynard as for four years he was my instructor in horticulture at the Massachusetts Agricultural College. A host of former students of the old college extend at this time their feelings of sympathy to the family. Prof. Maynard will long live dear in the hearts of those who were fortunate to have him as an instructor.

Some New Varieties

THE New York Agricultural Experiment Station has brought out seven new varieties of grapes, which have proved superior to existing varieties grown in the experimental vineyards. Four of these grapes, Brocton, Ontario, Portland and Ripley, are green; two, Dunkirk and Urbana, are red, and one, Sheridan, is a black grape, which it is thought will compete with the Concord.

Grape growers in western New York are much interested in a new type of Concord, known as the Shoenfeldt Concord and brought out by Gus Shoenfeldt. It is believed that possibly this grape is superior to the Concord. It is now being given a thorough trial.

Cherry growers of the Northport, Mich., district, are much interested in a cherry known as the Nelson

Black or Northport. It is claimed that this cherry has been shipped in good condition from northern Michigan to New Orleans. One feature this cherry has which no other sweet cherry has that we know of, is that it does not crack during rains. If this is true, the growers have a gold mine.

We shall be interested in learning more about these valuable new fruits.

Seedless Apple

APPLES without cores or seeds are promised by a discovery announced at Abbotsford, Canada, the particulars of which have just been received by the Department of Commerce from Consul General Halstead.

According to the announcement a seedless and coreless variety of Fameuse apple has been developed, which differs but slightly in shape from an ordinary Fameuse by being longer and flatter at the ends, but with the typical coloring and flavor. Except for a slight marking on the flesh which outlines the situation of the core in an ordinary apple, there are neither core nor seeds. The apples were developed in an orchard at Abbotsford, and the discovery that they were out of the ordinary was an accident. They had come from a new block of Fameuse, about eight years old, bearing for the first time in market quantities, which had been top grafted on Rabka seedlings. The discovery was made while grading for market, but unfortunately no record was kept of the tree or trees producing the new fruit and it will not be before another harvest that steps can be taken for its commercial development.

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WRITE FOR Our nation-wide chain of 30 basket factories enables us to deliver baskets when and where you want them. Write for prices on bushels, half-bushels, corrugated pads and liners, also for free book which tells how to pack your fruit to get higher prices.

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MARKETS AND MARKETING

THE APPLE crop of 1922 has now practically passed into consumption. There was some disappointment during the season and some lessons which we can all learn. The summer and fall were unusually warm, causing an early maturity of the fruit and fruit which did not keep any too well. The codling moth attacks in the West took a heavy toll, while in the East, fungus diseases, such as scab, etc., were very bad. The early crop reports showed that there would be about 33,000,000 bbls., but later developments showed that there was a less tonnage. A very large percentage of the tonnage consisted of summer and fall apples.

The situation during the past season was much complicated by the railroad and coal strikes and the car shortage. The car shortage was not only due to the strikes but also was aggravated by the very heavy grape tonnage which forced on the market, grapes needing the same type of cars as did the early apples.

The foreign market has not varied very much from the domestic market. Some sales on the Pacific Coast have been made as high as \$1.70 f. o. b., but they were not the rule. With each succeeding variety coming on the market, the growers hoped that there would be a material improvement but this, however, did not take place owing very largely to the fact that each variety as it came on arrived in the market in an over-ripe condition. There was a great deal of breakdown in the fruit. Some cars, it was reported, took 30 or 40 days to reach their destination. It was impossible to precool and cold store a large percentage of the tonnage. Growers realize that in the future we must handle summer and fall apples as though they were soft fruits, that cold storage is going to be absolutely necessary to handle the situation intelligently.

Fruit broke down in storage early this season. By March a large percentage of the fruit in storage was showing discoloration from scald and by April and May there was a relatively small amount of fruit offered the trade that did not show some scald. Wherever fruit was wrapped in oiled wraps, it kept very much better and very little scald was in evidence. From present indications, a large percentage of the boxed apples this coming year will be wrapped in oiled wraps.

Some gain was made in distribution; especially the large co-operatives distributed their fruit fairly well. However, too much fruit was congested in large centers. There is much agitation in the Pacific Northwest states, like Oregon and Washington, concerning bulk shipment. Some growers and shippers feel that the shipping of bulk apples into the middle west would hurt the boxed sales. This is undoubtedly true as far as that territory is concerned, but it probably would not have much influence on the boxed sales in the larger centers of consumption. Shippers, who naturally sell large percentages of their tonnage in the territory just east of the Rocky Mountains are naturally opposed to bulk shipment.

Other shippers, however, feel that much fruit goes to waste that could be sold in bulk at a profit, and that by selling fruit in bulk, the gross returns to an individual orchard could be very materially increased. It is a question which has two sides, it is a question which is debatable and perhaps one will never know whether bulk shipments will pay or not until they are tried on an extensive scale.

Idaho and Colorado growers have found bulk shipments very profitable some years, but not other seasons.

During the entire season whenever cars which showed good size and color, and were in fine condition, arrived on the market, they were snapped up at a price above the average, showing that no matter what conditions are in the market, if a man has high-class fruit he can sell it to advantage.

One thing apple growers should learn from this last year's experience is that some new system is going to be necessary for the distribution and sale of apples. At present, whenever there is a fairly large crop, the growers name a price which the buyers will not pay. The buyers hold off for consignment. There is a period of lull when there is no trading, when, on the contrary, there should be very heavy trading. The heavier the tonnage, the heavier the movement; but the way our apples are handled, the heavier the tonnage, the less the movement, especially early in the season. This works to the detriment of all parties.

Fruit is cleaning up strong. Western boxed shippers are now asking as high as \$2.50 f. o. b. for good stock. Barreled shipments in all markets during the past 30 days have materially strengthened.

A SURVEY throughout the East in the middle of April showed that there was a relatively small stock of dried prunes on hand. Prices being quoted by independents were much lower than the association opening prices of the California Prune & Apricot Growers' Ass'n, or the prices received by the Oregon Growers' Cooperative Ass'n. In the case of 20-30s, independents were quoting as low as 17 cents, whereas the opening of California prices was 25 cents; 30-40s were being offered at 10 cents, whereas the opening price was 10 cents.

The activity of the two big co-operatives in California and Oregon has meant a great deal to the prune growers on the Pacific Coast this year. It is now estimated that the prune crop will be rather light. As soon as this was determined by a careful survey by the California Prune & Apricot Growers' Ass'n, word was flashed out to the trade and, as a result, the market strengthened materially. Present indications are that the crop will range between 60 and 75 per cent, and will be lighter than it has been for a number of years.

The apricot situation has been worse than the prune situation, namely, independents this spring quoting considerably under the opening prices of the co-operatives. A large quantity of dried pears, peaches, figs and apples has been offered to the market at relatively cheap quotations. This has influenced to a certain extent the price offered for apricots.

IT IS reported that there is a considerable tonnage of canned fruit from the 1922 pack unsold. Investigation shows, however, that this proportion is no greater than normally and should be handled very nicely before the new tonnage reaches the market.

Foreign business on canned fruit this year was relatively light. It is believed that there will be a very good demand for the 1923 canned pack and at very fair prices.

Subscribe for The American Fruit Grower Magazine—3 years for \$1.00.

Canning for the Family

by Hazel Bursell

CANNING—the preserving of fruits, vegetables and meats for future use—can be the source of much pleasure, profit and satisfaction to the housewife, if she uses efficient and correct methods in her work. The woman who has never been able to look with pride on a store-room filled with row on row of beautifully canned products, all the result of her handiwork, has missed something! Fruit Growers' wives can well feel sorry for her.

By canning surplus farm products we not only save them from wasting, but we provide variety in food during the long winter months, and make the family healthier and better nourished. Fruits and vegetables are rich in mineral salts and vitamins, and it has been proven that they lose little of these qualities in the canning process.

Products Like Fresh Foods.

Canning is one of the most desirable means of preserving fruits and vegetables as it keeps them in a condition more nearly like that of the freshly-cooked product than is the case with dried, brined, or pickled products. Another big advantage is that when the canning is done the food in the can is practically ready to serve and valuable in an emergency.

The process we are going to discuss is the One-period Cold-pack method, as it has been found most efficient and gives the best product. It is only in this way that the foods which are difficult to "keep"—such as meats, peas and beans—can be put up at all, as more "germs" get in from the air while the cooked product is being transferred to the jars in the open-kettle method and cause the food to spoil.

In the cold-pack process where the food is put in the jars raw and processed afterwards, all these bacteria and molds are killed, and other things being right, the product is sure to keep. Then, too, the latter method gives a whole, nicely colored product while the open-kettle fruit is dark colored and more or less of a "soupy" consistency.

If you have a pressure-canner to do the "processing," that's fine, but a home-made water bath consisting of a tight-lidded wash boiler and a wooden or tin rack for the jars will do just as well. The writer has always used the latter method with good success.

Get Equipment Ready.

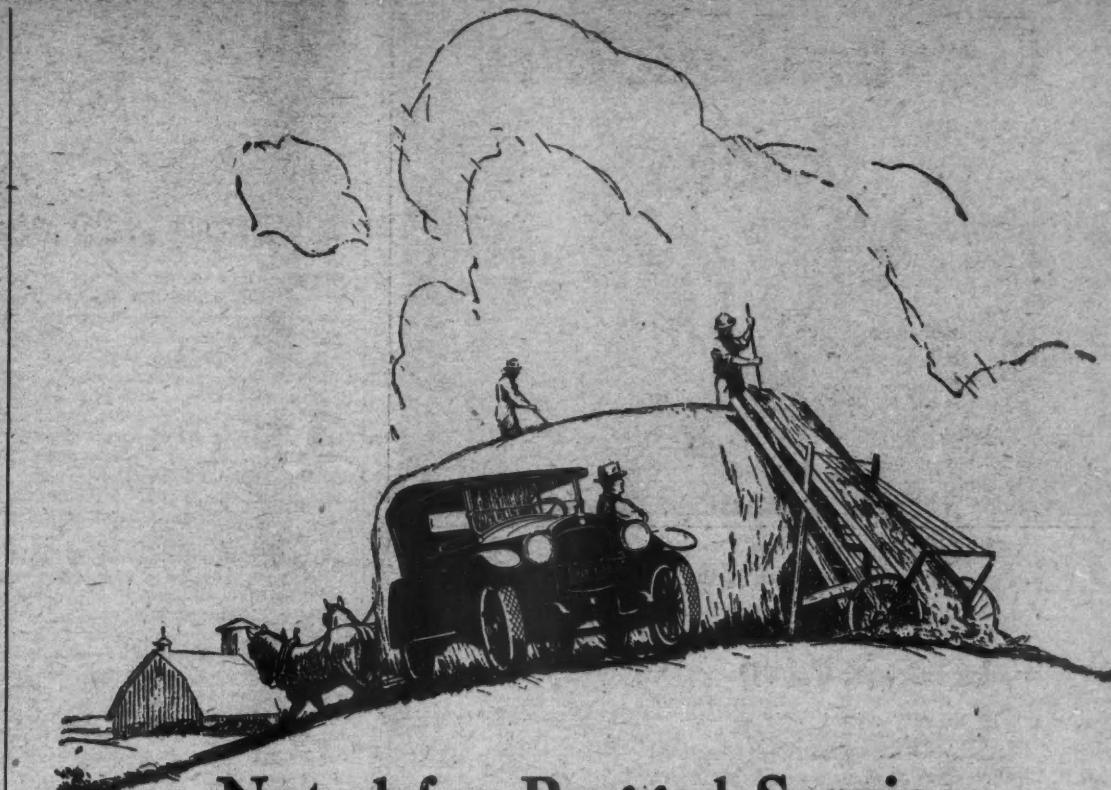
The first thing to do is select and arrange the equipment. Here is a list of essentials: Jars, rubbers and lids—washed and scalded. Examine jars and lids carefully for cracks and never use poor rubbers. Sugar and syrup kettle, if for fruits. Salt, pepper, etc., if for vegetables. Measuring cups and spoons. Sharp knife for cutting and peeling. Wire basket for scalding tomatoes and peaches so that the skins will slip off. Pressure-canner or water bath and rack as described above. Labels for the jars. Wide funnel for filling jars with foods and liquid. Boiler or dishpan of scalding water for blanching, in case of vegetables.

The processes of canning fruits, vegetables and meats are quite different for the various types, so that it is wise to discuss each separately.

Canning of Fruits.

The first point is the selection and preparation of the fruit. It should be absolutely fresh and sound. If the fruit is allowed to stand for some days or even hours after being picked, the bacteria have a chance to multiply and may cause trouble later.

Can only firm, sound fruit, slightly under ripe fruits in many cases giving the best results. Prunes and plums are best when canned before really ripe, while pears, peaches, and berries should be sweet and ripe, without being "dead" ripe. All soft and tainted portions should be cut away, or better still make the overripe, bruised fruits up into jams and butters.



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He knows, too, that throughout its unusually long life, he can count on the Hupmobile for reliable service, and brilliant service, and that it will give this service week in and week out with remarkably slight necessity of even minor adjustment or repair.

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Hupmobile

The smaller, thin-skinned fruits are stemmed and washed and put directly into the jars, even though they have "stones." I never remove the pits from cherries, except the Kentish, or from the smaller plums—it is a waste of time and energy. The larger plums and prunes may or may not have the stones removed, as they are delicious either way.

May Use Apple Peeler.

It is necessary to peel and cut up the larger fruits, as pears, apples and peaches. The pits and cores must come out also. A sharp silver knife is best for the peeling, though I often use the regular apple peeler and slicer (the one used in drying apples) for the apples. It is much faster and gives a delicious product. For peaches put them in a wire basket and immerse in boiling water for a minute or so, and then the skins will rub off easily. Cut them in halves and pack neatly in the jars. It pays to put these fruits in the jars and cover with liquid as you go, to prevent the products darkening.

Berries should be put in a colander and dipped in a pan of water, and then shaken slightly so that the leaves and grass seeds will float and can be skimmed off. Then put the fruit directly into the jars. The more common fruits require special treatment.

The syrup should be made and cool by the time the fruit is in the jars.

In my canning, I use only enough sugar to bring out the best flavor of the fruit and take away the acid flavor—one-half cup of sugar to the quart of fruit in most cases. For peaches, loganberries and plums I use about three-fourths of a cup, never more. Pears also need to be quite sweet to be at their best.

Put the measured sugar in the kettle and pour over enough water to dissolve it well, about as many cups as you have jars of fruit. Boil until clear, and then cool.

Put the allotted amount of syrup (some water will have boiled away in making the syrup, so a scant cup if a cup of water was put in originally) in the jar which has been packed with fruit, and then fill to the top with cold water.

Next put on the rubber and lid, but do not seal completely until cooked, with either the glass-top or screw top jars. This allows for the escape of steam in the water-bath method. They will have to be entirely sealed for the steam pressure-canner. The lids may be sealed down just as the fruit is taken out of the water, or just before removing from the fire. The self-sealing jars will of course have their lids clamped down tightly all during the cooking process.

I always stand jars on their heads after sealing to see if there is any leak, by chance, or if there is an air-hole—shown by bubbles continuing

to rise from one certain spot. It is best to let screw-top jars cool, standing on their heads. Do not allow a draft to strike the jars, as there will be some loss from breakage.

It is necessary to guard against the over-cooking of fruits, especially berries which require only a very few minutes, as shown by the time table. For exhibition purposes I have cooked raspberries in a double boiler of hot water sitting on a table. They were in a self-sealing jar (sealed in this case with a hot iron placed on the lid). They were pronounced perfect. I have a rule to remove fruits from the water bath as soon as they really begin to shrink from the bottom.

Paste neat labels on the jars when cool, and store in a cool, dry, dark place. If necessary wrap the jars in papers or keep them in boxes to keep out the light.

Vegetable Canning.

Select fresh, sound vegetables and string the beans, shell the peas, husk and cut the corn—from the ear, etc., to prepare them for the jars. The corn may be cut off raw or the "milk" may be set by cooking a few minutes—I use the latter method as it prevents much waste.

While you are doing this have a boiler or big pan of water partly filled with water heating to the boiling point for the blanching. It is preferable that the vessel has a lid. Put the vegetable in a white sack and



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AMERICAN FRUIT GROWER MAGAZINE, 53 West Jackson Blvd., CHICAGO.

immerse in the water, leaving one corner of the sack out so that it can be removed without burning the fingers. Leave in for the exact time mentioned in the time table for blanching on this page.

Remove the sack and plunge into a bucket of cold water to cool and "set" the color. This blanching and cold-dip process improves the flavor and makes the vegetable keep better, as well as giving peas, beans, etc., an attractive green color.

Next put the blanched products in the jars and shake down so they will be well-filled. Never cram the jars full. Season to taste with salt (2 level teaspoonsfuls to 1 quart), pepper and any other seasonings preferred. Fill the jar with water and put on the caps and lids as for fruits.

For vegetables and meats I use only the wide-mouthed, self-sealing jars. It saves time in filling the jars and the self-sealers require less handling, making them less likely to be contaminated with germs.

Vegetables require much longer to cook them than do the fruits, and there is little danger of over-cooking. Most of them require from 3 to 4 hours in the boiler water-bath, and from 30 to 40 minutes in the pressure canner. Keep the water in the boiler boiling all the time the jars are processing, as raising and lowering the temperature may cause breakage. Follow the time schedule in processing.

Follow the instructions given for fruits in cooling, labeling and storing. It is necessary to be even more particular about storing vegetables in a cool, dark, dry place, than for fruits.

Canning of Meats.

The canning of meats and fish is usually considered difficult, but it need not be much trouble if the cold-pack method is used throughout.

Cut the meat from the bone, leaving in serving-sized chunks and pack in wide-mouthed jars. Some house-

wives prefer to cook the meat until it comes loose from the bones easily, let it cool, skim off the surplus fat, and then pack the meat in jars, using the broth from the cooking to fill up the jars. Both methods are satisfactory. When the meat is put in raw, fill the jar with water, using hot or cold as preferred. I have always had good success with cold. Add salt and pepper, using a rounded tablespoonful of salt to a half-gallon jar of meat. I like to use a little onion with beef, and sage with pork. Pork may be made into sausage, dried and canned in gravy.

For fish, scrape off the scales, and then cut up in serving-sized chunks, leaving the skin on in most cases, and pack in jars. Many housewives add a little olive-oil to fish that has little fat. Fill the jar with water and season with salt.

Now we are ready to put on the lids and process. For the boiler water-bath method I cook my meats six hours, boiling continuously. That may be longer than is necessary, but it is a sure method as I have never lost a jar of meat canned in this way, and the final product is most delicious. The broth will be thick and jelly-like when cold. Remove from the fire and cool.

I think it is best to keep all meats wrapped in paper or in the jar box in which they came. The box should of course be kept in a cool, dry, dark room. Label the box instead of each jar, as to the variety of meat.

Don't Eat Spoiled Foods.

If properly canned there should be no spoiled food, but in case we do have some spoiled canned products we should be very careful about eating them. Botulism poisoning is a serious menace in some localities, and should be guarded against rigidly. Here are three rules for guarding against this deadly poison:

Give all canned food a careful inspection.

(Concluded on page 28.)

TIME REQUIRED FOR BLANCHING AND PROCESSING FRUITS AND VEGETABLES.

Product.	Glass jar.	Blanch or cook.	Steam pressure.			
			5 Water bath at 212° F.	10 pounds, 228° F.	15 pounds, 240° F.	250° F.
Apples—whole, packed hot.	Pint or quart.	10 minutes.				
Apples—sliced, quartered or halved.	do.	20 minutes, or 10 minutes (if packed hot).				
Apple sauce.	do.	10 to 20 minutes.				
Apricots.	Pint	4 minutes.	10 minutes.	10		
Asparagus.	Pint or 3 to 5 minutes	180 to 240 min.				
Beans, string.	Pint or quart in water, or 5 to 10 in steam.					
Beans, Lima.	Pint	250 minutes.				
Beets.	Pint or 5 to 10 minutes.	180 minutes.	60	40		
Berries, etc.	do.	10 to 20 minutes.	10			
Blackberries.	do.	10 to 20 minutes.	10			
Blueberries.	do.	10 to 20 minutes.	10			
Carrots.	do.	3 to 5 minutes.	180 minutes.	60	40	
Cherries.	do.	25 minutes.	10			
Corn, sweet, Maryland style.	Pint 1 to 5 minutes.	240 minutes.		90	60	
Currents.	Pint or quart.	10 to 20 minutes.	10			
Dewberries.	do.	10 to 20 minutes.	10			
Figs.	do. 5 minutes in 30 minutes.	soda; 60 minutes in syrup.	25			
Gooseberries.	do.	10 to 20 minutes.	10			
Gooseberries—sauce (pack ed. hot).	do.	10 minutes.	5			
Grapes.	do. 4 minutes (if in steam).	10 to 20 minutes.	10			
Greens.	do. 4 minutes (if in steam).	240 minutes.		90	35	
Guavas.	do. 1/2 minute.	25 minutes.	15			
Huckleberries.	do.	10 to 20 minutes.	10			
Loganberries.	do.	10 to 20 minutes.	10			
Meats.	do.	240 minutes.		90		
Okra.	Pint 6 to 8 minutes.	120 minutes.		30		
Peaches.	Pint or 1 minute.	20 to 30 minutes.	10			
Pears.	do.	20 to 30 minutes.	10			
Peas.	Pint, 3 to 8 minutes.	240 minutes.		40 to 50		
Peppers, pli-melons.	do. 6 to 8 minutes.	30 minutes.				
Pineapple.	Quart.	30 minutes.	10			
Plums.	Pint or quart.	20 to 30 minutes.	12			
Pumpkin.	do. 10 to 15 min.	180 minutes.		40 to 60		
Raspberries.	do.	15 to 20 minutes.	10			
Rhubarb.	do.	20 to 30 minutes.	10 to 15			
Rhubarb sauce (pack ed. hot).	do.	10 to 20 minutes.	10			
Spinach.	do. 4 minutes in water; 15 min.	240 minutes.		90	35	
Squash, winter.	do. 10 to 15 min.	180 minutes.		40 to 60		
Strawberries.	do.	10 to 20 minutes.	10			
Sweet potatoes.	do. 10 to 15 min.	180 to 240 min.		70	60	
Tomatoes.	do. 1 to 1 1/2 min.	25 to 30 minutes.	15	10		
Tomato puree.	do.	25 to 30 minutes.	15			
Vegetable mix-ture.	do.	180 to 240 min.		30		

The Orchard Home Department

by Mary Lee Adams

Women of an Ancient Race

MARY AUSTIN, with some twenty notables from among the Pueblo Indians, was in Washington recently to plead their cause in an effort to prevent their remaining lands being taken from them or rendered useless for cultivation through the diversion of water to other fields.

Miss Austin is, through her writings, more closely connected in our minds with Indian lore than any other person. She drew a most interesting picture of this people. Some of the things she told might well serve as an example to far more advanced nations. Many of their customs are singularly picturesque, and they have a high type of civilization dating from ancient times.

Their dwellings are of sun-baked mud and are built by the women. A wife and mother builds the house according to the needs of her family, adding to it as occasion arises. When the daughters marry, they bring their husbands with them to the home, building and extending the boundaries and, singularly enough, placing story upon story.

They excel in the making of pottery. Even their largest decorated pots are shaped by hand with a marvelous skill. Maybe some of you have gone west over the Santa Fe route and have seen samples of their art at the railway stations.

To the men belong all outside activities. To the women belong everything pertaining to the home. For instance, it is the duty of the man to plant, to cultivate, to guard the growing corn and to harvest it. Through all this time it is his. But once within the house, this grain becomes the property of the woman and cannot be disposed of in any way without her consent.

She grinds and bakes it. Sometimes she summons other women to come of an afternoon and help her grind the corn. They sit in a circle and grind, and the men of the village are wont to drop in and encourage them at their work with the music of the "grinding song." The rhythm of this song conveys the motion and monotony of the process.

The "moonlight song" is probably full of tender romance to the Indian ear, for surely moonlight and romance are inextricably interwoven. Yet, if on a moonlit eve, it were to burst unexpectedly upon our youths and maidens, they would stay not nor tarry, but fly precipitately from the menace of those warlike notes.

Yet the Pueblos are not war-like. They have always been of gentle nature and disposed to live and let live. Their theory of government is democratic, co-operative without selfishness, and their religion is a Quaker type of Christianity, which the tribe early accepted.

What the Nurse Says

THE district nurse, who is my friend, came to see me some days ago and was so much less cheery than her wont that at last I asked if anything had happened to distress her. "Nothing unusual," she said, "except that I was particularly fond of the young woman whom I left doing so well after my last visit and whom I find in a far from satisfactory condition on my return, weak and exhausted. Just too much company admitted to see her."

"You'd be surprised," she continued, "at the number of preventable deaths that occur in my experience. Not just among people who won't carry out doctor's orders. It's something that the doctors themselves do not always fully appreciate, and as for the families, they think it downright nonsense and mean as well, if you caution them not to let a convalescent see too much company."

This being rather a hobby of my own, we began to compare notes as to one person after another whose

convalescence had been delayed, or worse, by the exhaustion, unnoticed at the moment, caused by the strain on the patient of the excitement, the noise, the mental effort of following and responding to conversation.

The awkwardness of telling a well-meaning friend that it is time to leave the sick room, frequently makes the person in charge hesitate to put an end to a visit, especially if the patient seems to be enjoying it. But this stimulation, if carried too far, results in extreme fatigue. If a restless night follows, untold damage may be done.

"But what can you do about it?" I said, "beyond trying to impress its importance on families where there is sickness?" Her eyes twinkled at this. "For one thing, I might ask you to mention my views to the 200,000 women who read the Orchard Home Department in the American Fruit Grower. Will you?" she begged. So here it is.

A Hint to Politicians

MAN the theorist; woman the dealer in facts." Thus many students of the differentiation of mental powers in the two sexes, have summed up their conclusions. At the recent National Conference of Women in Industry, this was echoed by one of the speakers, that brilliant social worker, Mrs. Raymond Robins, who observed that politicians were unnecessarily perplexed over the question "How Will the Women Vote?"

According to Mrs. Robins, one aspect will determine the vote of women—food, housing, clothing. They ask for bread and coal and the right to education and peace. They will test an administration by the simple facts of human welfare.

Jokes Heard at Farmer's Convention

A SAWED-OFF little mountaineer from way back in the Blue Ridge, came down to town where his appearance on the street aroused the mirth of a big bully who, after tormenting him for some time, sneered, "If you weren't so little, I'd hit you." Out of the blue denim shirt whipped a long keen knife, and a gentle voice drawled, "If I'm too small for you, I reckon I'll jus' have to carve you down to my size." And suddenly the little mountaineer found himself alone.

The five year old, just home from his first Sunday school, recited his experiences breathlessly. "Oh, Papa! The teacher telled me all 'bout God an' Adam. She telled me how Adam went to sleep in a garden, an' God comed along, an' He took the brains from Adam an' made a woman."

A farmer vainly endeavored to persuade a banker to extend him just a little more credit to tide his family over a period of almost foodless stringency. The banker, who had a glass eye, at last agreed to make the loan if the farmer could instantly decide which was the banker's glass eye. He at once pointed unhesitatingly to the right eye. The banker was amazed and inquired the farmer's reason for his unhesitating decision. "Well," said the farmer, "I thought I could see just a little mite of sympathy in that right eye."

When I look into a glass
Myself's my only care;
But I look into a pool
To see the wonders there.

When I look into a glass
I see a fool;
But I see a wise man
When I look into a pool.

—W. H. Davies.

Neighbors and Neighborhood

EVEN in cities it is possible to be neighborly but, like many other lovely things, this quality finds its fairest flowering in the country. It counts for so much there, and opportunities to practice it are endless.

How to Treat Newcomers

If you had to move away from the neighborhood you love and live in, what would be your first thought about the place to which you were going? Probably you'd wonder, first of all, what kind of neighbors you would find there. Will they welcome you, or leave you to eat out your heart in loneliness? Will they come to see you and tell you helpful things about your new surroundings, or will they leave you to find things out for yourself, often through avoidable mistakes? Will they care if you are well, or ill, or homesick?

There's nothing like putting yourself in the other person's place for finding out how you can help them. After imagining yourself torn up by the roots, striving desperately to settle into a strange home, you won't have to ask anyone "What can I do to make it pleasant for my new neighbors?" You'll know what you'd like done for you in a similar case.

The Wise Newcomer

And if you are indeed a newcomer, it's worth remembering that there are two sides to this neighbor business. Why expect people who don't know you, to come to meet you more than half way? You must do as much, or a little better than that. After all, they make more difference to you than you possibly can to them, for a while at least. You are absolutely dependent on their good will for your social welfare. They have already made the necessary connections and were getting on very well without you.

When one hears it said of the latest arrivals that "They seem to fit in so naturally," or that they "Promise to be a real addition," it is an indication that they have done well their part. They must have shown both interest and appreciation. They've been pleased by any attention and ready to enter into neighborhood activities.

This disposition to become a part of the community, to help in its upbuilding and to take a pride in its accomplishments, is one of the most winning traits the stranger can show.

Daily Neighborhood Life

But life is not made up of new arrivals. There's a sort of exhilarating freshness in opening untried relations. Taking the trouble to make acquaintance is like climbing an unfamiliar hill. We are spurred on by the uncertainty, the hope of what may lie ahead. Perhaps that summit gives a view into a strange and beautiful land.

Well, after we've climbed all our neighborhood hills, we're apt to find that the views are all pretty much alike. Nothing very startling, much what we see from our own windows. It tends to monotony.

But that's no reason to turn aside. The surroundings may not be splendid, but if you look closely and clearly, you'll find much simple, homely beauty. See what you can do to improve the outlook. Plant a few flowers in your own dooryard and drop some seeds of kindness over your neighbor's fence.

Take a Wider View

There's nothing truer than this—the better neighbor you are, the better your neighborhood will be. Where you see a private improvement desirable, set the good example that will arouse interest and emulation. Where

things of more general value are needed, seek the aid of forward-looking persons and, with their help, work up active interest in worth-while local questions; good schools, vital churches, roads passable in all weather, circulating libraries, the many things that lend charm and comfort and uplift to life. By no means neglect community and church entertainments. Those who have played happily together will work together cheerfully.

A generation ago, when a club was mentioned, everyone thought of a meeting place for men. Today, women have a large share in club life, and whereas the term "club-man" connotes a somewhat worldly, conventional type, the later appellation "club-woman" carries a finer suggestion. It calls up the image of one capable and alert, interested in public or community affairs, anxious to do her share, willing and able to help things along.

Women need take no particular personal pride in this improvement in the meaning of club-woman over club-man. Rather it is due to the woman's club being a later development and in accord with the spirit of the times. Many men's clubs are fully as earnest and altruistic as the best clubs of the women.

Every neighborhood, however small, should have a club or some kind of organization for the promotion of community spirit. Call it Community League, Sons and Daughters of Brownsville, or what you will. It should be a source of individual pleasure to the members, a promoter of progress, a power for making the entire social life more cheerful, more wholesome, more democratic, more enlightened.

Stay Where You Are.

It's far more satisfactory in the end to grow into a place, to become an integral part of it making the best of all opportunities you have, rather than to keep seeking after impossible perfection elsewhere. After all, if you found perfection, it would leave you no room to exercise your influence for good, and so your chance of personal growth would be lost.

The most hilarious and utterly pointless game of my childhood, was "How Do You Like Your Neighborhood?" This question, being asked one of a circle of seated children, received the invariable reply, "Not at all!" Then came "What will you have?" and the joyously shouted answer "A general move!" Whereupon every child rushed for some other seat, knocked over a few chairs and smaller children, and landed breathless and triumphant but, if one might judge from the next unvarying demand for "a general move," not one whit better off than before.

Remember the story of the little woman who "lived in a house by the side of the road," and who always entered into kindly chat with those who passed her door trekking to the settlement beyond. To such as spoke sadly of the dear neighbors they had left, she gave encouragement, "Ah! don't grieve. You'll find just the same kind where you are going." And to those who said spitefully, "We're thankful to be rid of the mean people we've left behind," she spoke much the same words, "You'll find just the same kind where you are going."

Counting the Cost.

"Anything worth having seems to cost trouble." The speaker being very young, voiced this sentiment for the first time. To him it came as a new thought. He was but the latest of the many millions who, sooner or later, arrive at this sound conclusion.

The wise have always accepted this inevitable condition of life and taken the trouble necessary to gain the worth-while things. They are the contented ones of earth. They exert an influence for good cheer on all whom they meet.

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Fruit Packing

CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



Storing Your Furs

WITH summer almost at hand, most of our readers will be storing their furs till the cool autumn days come again.

Are you sure that the moths won't get in yours? Will it come out in just as good condition as when you put it away? Would you like a few suggestions on the care and storage of furs? I believe so.

The first thing to do, before putting the furpiece away, is to give it a thorough cleaning. One method is to lay it on a board and strike it with light switches to loosen and raise the dust. Then shake the fur. You may comb the nap with an ivory comb and brush it with a stiff brush, taking care to work with the nap.

If it is very soiled, you may find it necessary to remove the lining and wash the pelt in gasoline, which cleans without fading and kills germs as well. Give it two baths, soaking for 2-3 hours in the first one, if possible. Then hang it in the shade to aerate—the gasoline smell will vanish in the air.

Another cleaning method often used in homes equipped with a vacuum cleaner, is to pass the suction tube over the fur, to take up the dirt and loosen the nap.

The next problem is the moths. White arsenic (a deadly poison which should be kept out of the way of children, etc.) is the best moth killer and preventative. Put it on the fur and then rub it down in, using the arsenic powder rather generously.

The fur may then be hung up in a bag and stored away. When you want to use it again be very careful to brush it well, and shake it thoroughly before putting it on.

If the fur is kept at home, the housekeeper should handle it often, and put it out on the line in the breeze once a week. The best plan, possibly, is to send it to a cold storage plant for the summer, but this is not always possible, especially for the woman living in the country.

Should you have a real cedar chest, you will find it a most satisfactory place in which to keep your fur, preferably in the bag. Be sure that no moths are present in the fur when it is stored, if you put it in the chest without arsenic.

If the fur is to be kept in cold storage, the owner need not rub in the arsenic, as the storage man will take care of the moth problem.

I have just one more suggestion, valuable to fur owners all the time—be sure and have your name in your fur. Rip the lining and write the name in ink directly on the skin of the pelt, and the mark can never be removed. Then in case you lose the piece, all you have to do is to remember the position of the mark, rip back the lining and identify your fur.

Color Affects Disposition

DON'T paint your dining room blue! It has a depressing effect and will take away your appetite. Even blue dishes have a similar effect. Are you lazy? Then keep out of green or yellow colored rooms. They will make you lazier than ever. For "pep" look well to red colors.

These principles are now being taught us by persons who have given years to the study of the effect of color on the personality and disposition of different individuals.

Dark Colors Lack Cheer.

The color of clothes plays an important part in the individuality of

the wearer. Dark, dull colors are inclined to make one feel less cheerful, while bright colors make one feel gay. For persons who are inclined to be despondent, a cheerful color which is mildly stimulating will often improve their mental attitude.

This does not mean that you must immediately "paint your house red"—you can bring color touches through pillows, drapes, pictures, etc. Furthermore, your house dresses and "everyday" clothes need not be dull, drab things. They can be just as serviceable and yet have a touch of color to keep you happy as you work.

Small children are often irritated by the color of the clothes they wear. This is especially noticeable in children who wear all-white clothes, says one authority. Since a child's eyes are very sensitive, anything which causes the reflection of the sun on the white of his dress causes a glare in his eyes and makes him nervous. A tint of color that would tend to reduce the gloss and glare is strongly recommended for children's clothing.

Red is Stimulating.

Red is a physical color, vitalizing and stimulating. It is helpful in case of nervous collapse or low vitality, such as chronic mental despondency, but is very injurious and disturbing to high-strung or nervous persons.

Blue is cooling and restful. It is supposed to arouse the intellect. Feverish and nervous persons should be put in blue-tinted rooms. Grays and greens are usually cooling, sooth-ing and restful in their effect.

Yellow is a fine color for dark rooms because of its cheerful effect upon the mind, being most like the sun. Different values of yellow and its near-relative orange, used in smaller amounts for the more intense colors will be found most useful in decorating the home and in planning costumes.

Ordinarily the colors that are inclined to be stimulating—those that are restful and cheerful—are much preferable for the normal person. Dull colors make one inclined toward somberness and dignity, while bright colors give one the feeling of gaiety and happiness.

The Bathtub on the Farm

EVERY farm home needs a regular bath tub. It need not be an expensive white porcelain one with a half-dozen equally expensive and handsome fixtures. A tin one, enameled white will do the work just as well and can be afforded in the most modest home. It may even be a portable one, where a bathroom is lacking, but it's a real bath tub just the same.

The day of the family round-robin in Mother's washtub on Saturday night is passed. Just try getting a real bath tub and see what a difference it will make in your family! Sons John and Billy will lose their fear of the water in short order and become regular water-babies.

In many cases they'll want to bathe more than once a week, and Mother, you just encourage them to do so. Good food, warm clothes, plenty of sleep and frequent baths are sure paths to strong, healthy manhood and womanhood.

And baths have many uses besides the time-honored one of "taking off dirt." A warm bath is restful and a nerve "sedative," while a cold bath brings just the opposite reaction—nerve stimulation, pep and vigor. Baths will reduce the temperature of the body when the person is fevered.

Security
Sure Protection to Life, Home and Property

Does lightning frighten you? You and your family should know more about it. It ruins property and kills people, but will lightning ever strike my barn or my home, or kill my stock or my family? Oh, it might! Listen neighbor, the percentage of all fire losses due to lightning is amazingly large. Don't fool yourself into the belief that you are secure unless you are protected by the Security Water Grounding System.

Write for the booklet and learn the facts, and let us tell you how secure and safe you may be by our System. Drop us a postcard now. Today.

SECURITY LIGHTNING ROD COMPANY
615 Pine Street
Burlington, Wisconsin

Wood Veneer Protectors

By H. A. Knevels

HOW best to protect young fruit trees from damage by rabbits and field mice is a subject of great interest to many planters at this time of the year. We are going to tell the story of how protection has been given to an orchard of 4,200 young apple trees on Ben Lomond Farm in northern Virginia, without the loss of a single tree in three years from this cause, and at an expense of about a cent a tree per year besides the work entailed.

We have used wood veneer protectors which come in a 10 by 18-inch size, packed flat with 100 in a package. Four years ago we bought 4,200 and we have just finished putting them on for the fourth time this fall. We ordered in a thousand new ones late this summer but only needed to use less than 200 of the new order, which cost now at the rate of \$4.00 per hundred.

These wood protectors need to be thoroughly soaked before using, so they can be bent around the trees without breaking. For this we use an old wash boiler in which a package of 100 fits very nicely. Be sure to separate the protectors after they are in the water as they are apt to stick together and prevent the water from getting in between. They should soak for an hour or two. While one package is being put on another is soaking. These protectors have to be wired on. Use number 18 or 20 annealed wire and cut in about 12-inch lengths, 100 to the package. This wire comes in 12-pound bales and is now quoted in a mail order catalog at 85c per bale. We used something over a bale on the 4,200 trees. An awl must be carried to pierce the edge of the protector, so that the wire after being put around the center of the protector and given a couple of twists, can be pushed through the perforation and clinched.

This prevents the wire from slipping down and off.

Our method of procedure is as follows: carry the bundle of wires in the left hand and the bundle of protectors under the left arm, with the awl in the right hand. As we pass to the next tree the right hand pulls a wire from the package in the left. Drop on the left knee at the tree and lay the wires, protectors and awl on the ground. The left hand picks up one protector and the two hands bend it around the tree, the left hand holds it in place while the right hand puts the wire in position, pushing it under the forefinger of the left hand. It is then fastened by a double twist using both hands. One end of the wire should be left about two inches long. A hole is then punched in the edge of the protector with the awl and the wire is put through and clinched. In this way a man can put on about 75 per hour after getting the knack of it.

In taking these protectors off in the spring, which has to be done before the dormant spray is put on, they have to be nested in packages of ten or fifteen so they can be stored without crushing. This is quite rapidly done as follows: use pincer-like cutters to cut the wires. As we pass to the next tree after removing a protector we take out the wire and place the protector on the outside of the package. The number that can be nested in one package depends on how dry they are and the condition of the protectors. Sometimes they wrinkle and then fewer can be put in one nest. These packages can be easily carried until three nests are completed when they can be left in a window to be gathered later with a wagon or wheelbarrow.

Mice are not apt to gnaw trees unless they nest around them. We hoe within a circle of four to six feet around our trees once a month during the summer. This cultivates to this extent, keeps away the mice and insures against fire if a sod march is used and grass mowed and left on the ground.

IT IS the best paper on horticulture printed.—T. L. Russell, Pennsylvania.

FARM WAGONS
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Sinks and Tables Right Height

THE height of a woman's kitchen sink and work tables are important factors in her well-being and well-doing. She can't work as long or as efficiently and feel well and strong with her sink and table so low that she has to bend over her work, or so high that she has to "reach up."

As a general rule 32 to 36 inches from the floor is the height for work tables, and the bottom of the sink should ordinarily be 30 to 31 inches from the floor, the home economics kitchen of the U. S. Department of Agriculture suggests.

However, each woman ought to find out for herself the height of the table at which she can work most easily, and see that her tables are adjusted accordingly. Legs which are too long can be cut off, and those too-short can be raised by putting blocks under them.

Cherry Recipes

Cherries, one of the early fresh fruits, can be used in many ways. Nice ripe ones are delicious fresh in salads and fruit cocktails. Nothing will ever quite take the place of Kentish cherry pie for the average American. Cherries are excellent in gelatin moulds; besides, they are attractive looking in the transparent jelly.

Cherry Salad.

Remove stones from white cherries and stuff with nuts. Place cherries in a circle, pile chopped nuts in center and place dressing on top.

Cherry Tapioca.

$\frac{1}{2}$ c. minute tapioca soaked in $\frac{1}{2}$ c. water. Put tapioca in bottom of buttered pan, then a layer of cherries, a layer of tapioca, a layer of cherries and so on. Have plenty of cherry juice.

Cherry Pudding.

1 T. baking powder.
1 c. flour.
 $\frac{1}{2}$ c. milk.
1 T. melted butter.
3 eggs.
 $\frac{1}{2}$ c. sugar.
1 t. salt.
Juice of fruit and sugar.
Steam in molds. This serves 10 people.

Sauce For Cherry Pudding.

Whipped cream.
Juice of fruit and sugar.

Maraschino Cherries.

Pit the cherries and soak them in a strong salt brine two weeks; wash the salt off the cherries. Then make a weak vinegar solution and soak the cherries in this, changing the vinegar every day for five days, or until the salt has all been extracted. Then make a thick syrup, fill the jars with the cherries, pour over them the boiling syrup and add $\frac{1}{2}$ cup Maraschino wine to a quart jar. Use fruit coloring that comes in gelatine packages to give color.

Cherry Olives.

1 c. vinegar.
 $\frac{1}{2}$ c. water (cold).
1 T. each sugar and salt.
Mix and pour over cherries and seal.

Pickled Cherries.

Ripe cherries with stems on.
1 c. sugar.
1 c. vinegar.
Fill a quart jar with carefully selected cherries. Pack them compactly, but do not crush them. Make a syrup by boiling the sugar and vinegar together and pour this over the cherries. Seal air-tight. These are delicious served with roast meats.

Household Hints

To Keep Egg Yolks.

Egg yolks may be kept for several days by covering them with water, milk, or olive oil. Whites of eggs can be more easily beaten if a pinch of salt is added.

Mayonnaise Hint.

There is little danger of mayonnaise curdling if the salt, pepper, mustard and lemon juice or vinegar are added to the beaten egg yolks before the oil is mixed in.

Way to Keep Dust Down.

Wet newspapers torn up and scattered over a carpet or a bare floor will aid in keeping down dust while sweeping. Damp sawdust will serve the same purpose on the bare floor.

Removing Bed Clothes.

In removing bedclothes from a bed, each cover should be removed separately. This does away with lost motion in making up the bed.

FLY PAPER HOLDER

A good fly paper holder can be made of cardboard. Cut a piece of heavy cardboard, or two or more thin sheets 8 by 14 inches. Place sheet of Tanglefoot on cardboard, fasten four corners with wire paper clips. A half inch elevation in center of sheet increases the catch of flies. Bend up a piece $\frac{1}{2}$ by 6 inches in center of cardboard—lengthwise. This holder can be made in about two minutes without costing a cent.—MRS. J. P.

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Peach Twig-Borer

"THE PEACH Twig-Borer" is the title of Bulletin No. 355, published by the University of California Experiment Station. This is a serious insect on the Pacific Coast. The summary of this bulletin, which will be of interest to all western peach growers, is as follows:

The peach twig-borer (*Anarsia lineatella* Zeiller) is a serious pest in deciduous orchards of California. The injury is caused by the larvae boring into the buds, twigs and fruit of the almond, apricot, nectarine, peach, plum and prune. The insect passes the winter in the larval stage underneath the bark in small burrows constructed in the crotches of young branches. In early spring the larvae come out and begin feeding on the buds and shoots. When the insects are full grown they crawl down the branches to the trunk where they pupate in the curvilinear rough bark. The adult moths emerge in early summer and begin egg laying on the twigs. About the first week in June a second generation of larvae begins to attack the twigs and particularly the fruit. Later in the summer a third generation emerges in some sections and causes serious injury to late ripening varieties of the fruits attacked. The fourth and last generation of larvae comes out late in September and begins at once to construct chambers and go into hibernation for the winter. These are also known as the first generation larvae of the following year.

A parasitic larva, *Hyperteles lividus* (Ashmead), has been found in certain districts. In some seasons it destroys as high as 95 per cent of the hibernating larvae.

Results of spraying experiments show that this insect can be controlled by a number of materials and at different times. Nicotine sulphate and arsenate of lead have, in these experiments, proved to be slightly better than lime-sulphur in controlling this pest, but in view of the fact that lime-sulphur is an all-round fungicide and insecticide, it is advisable to use lime-sulphur at the pink stage of the opening buds, with the addition of arsenate of lead in serious attacks. Bordeaux mixture and arsenate of lead, applied at the pink stage, is considered best on apricots in the coastal region because of the danger of lime-sulphur injury to the fruit. The lime-sulphur substitutes controlled the worms less perfectly than the commercial liquid lime-sulphur. The oil sprays and the dry dusts cannot be considered satisfactory remedies for this insect. Arsenate of lead applied as a summer spray has proved very efficacious on almonds, nectarines and peaches. Stress is placed upon spraying at the proper time and upon thorough application. Spraying must be supplemented by proper disposal of prunings and of cull fruits because they aid in carrying over the insect from one generation to another.



The Farm Electric Light and Power Plant

by E. W. Lehmann

THE development of the small electric light and power plant has made it possible for thousands of farm homes to be as well lighted as homes in the cities. One of the first demands for electricity on the farm was for lighting to make the farm home more attractive and to reduce the danger of weak eyes due to poor lighting.

The Value of Electricity.

Before electricity is adopted by a farmer, he should be sure that he will realize either a profit by its use, or improved living conditions. The value of electricity in improving the home life cannot be measured in dollars and cents. With the saving of labor by the use of small electric motors there is little question but that the substitution of electric motor for hand methods results in profit to the farmer.

The time required to churn, separate the cream, wash the clothes, do the ironing, pump the water, and clean the house is materially reduced where electricity is available. From three to four hours can be saved per week in washing alone. According to a report in the U. S. Department of Agriculture Year Book for 1919 there was an average saving of 20½ hours per week for all uses of electricity on sixty-seven farms investigated.

The value of the time saved will depend on the labor conditions on the individual farm. If someone is hired to do the various chores the time saved will represent a real money value. Too often little, or no money, value is put on the farm woman's time and the result is, due consideration is not given to the purchase of equipment that saves her time and energy. Electric lights and small motors will do much toward reducing the drudgery of the home.

At the present time the question before many farmers is whether he should install a small electric plant or wait and connect to the high power line when it is built. There is little question but that the high power line will be a better source of power for many farmers, but for many others the small unit plant must be used. One will supplement the other. The company controlling the power line, the cost of getting the line built to the farm, the service charge, the rate per unit of power, and the size of motors to be used are some of the factors that would determine whether power should be bought from a power line or a small plant installed. In many communities there is little likelihood of a power line being installed for many years to come.

Type of Plant.

The demand for electric lighting for automobiles played an important part in the rapid development of a type of plant suitable for the farmer. The first type of small electric plant to be developed was the belt driven plant. A generator, a switch board with instruments, and a storage plant were bought and the generator was belted to a gas engine that was already on the farm. It is very essential when this is done that the engine used be one of the throttled governed type so there is as little variation of speed as possible. The advantage of a plant of this kind is that the gas

engine that is now driving a line shaft for grinding, pumping, etc., can be connected to the generator and will provide power for lights at very little additional expense. A Missouri farmer who has operated such a plant for more than ten years, recently stated that he always charged the batteries when pumping or doing some other work with the engine and, therefore, felt that he was getting his power for lights for practically nothing. Plants of this type will continue to be used to advantage on many farms.

A later development has been the type of plant where the generator and engine are built right together as one unit, with the switchboard mounted on the frame of the machine. More plants of this type have been sold than other types. While the belt driven plant is usually started, stopped, and adjusted by hand, the self-contained plant usually has some automatic features. There is at least one plant on the market that is entirely automatic in its operation. The self-contained unit plant has some desirable features not had by the other types of plants. The engine, the motive power for the plant, is not used for other purposes and therefore, should give better service for lights.

Selection of Plant Important.

An important point in the selection of a plant, in addition to getting one for which repairs can be easily secured, is to get one of sufficient capacity. There are some very small plants on the market that are built to compete with gas plants. These plants are good only for lighting. A plant of 1,000 to 1,500 watts capacity is usually sufficient for the average farm.

An important part of every small electric plant is the storage battery. Many of the earlier storage batteries in use were too small. Plants are now being installed with larger batteries, which improves the operation of the plant. The life of a storage battery depends on how hard it is worked as well as its care, so a larger one should have a much longer life.

Due to the high depreciation of storage batteries it represents one of the principal items of expense of the plant and therefore special attention should be given to its care. Every manufacturer gives complete information on this point, the important thing for the user to do is to follow the instructions furnished with the plant.

In selecting a plant be careful to secure one of sufficient capacity. Study your lighting and power needs so you will have a plant large enough to take care of the largest load at any time. It is a good idea to determine if service can be secured through the local representative before deciding definitely on a particular make of plant. A known reliable company back of the plant is always desirable.

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quires 2 yards 36-inch material with $1\frac{1}{2}$ yards 32-inch contrasting.

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How to Kill Apple Aphids

ENTOMOLOGISTS at the Geneva Experiment Station assert that it is extremely difficult to control aphids on apple trees by spraying unless a systematic method is followed in spraying each tree. In experiments conducted in apple orchards in western New York, it was found that when spraying was done from the top of the spray tank the results were quite uncertain, due to the fact that the insects congregated on the lower branches of the trees where the spray mixture failed to reach them. At the same time in orchards where the Station spray system was followed, in which the spraying was done from the ground and under the trees, practically complete control of the pests was accomplished.

Station Spray System.

In the Station method, the spray outfit is equipped with a sufficient length of hose to enable the nozzle man to work from the ground and under the tree. He then takes up certain designated positions in spraying each tree which insure the spray mixture reaching the underside of every branch and twig. By moving from place to place and by maintaining a pressure of at least 200 pounds at the spray tank, it is claimed that each tree can be completely covered in a relatively short time. The Station tests and spray system are fully described in Bulletin No. 487 which may be obtained from the Station free of charge.—N. Y. Agri. Exp. Sta.

Trees respond to fertilization, tilage, pruning and spraying. There is many an orchard which the owner believes is unprofitable that could easily be made profitable by proper attention to cultural details.

Fruit Expositions

NOT for a great many years has there been such an interest shown in fruit expositions as this year. Already the dates are being fixed for next fall's expositions. The big Eastern Apple Exposition will be held in the Grand Central Palace, New York, the entire week of November 3rd to 10th. At the same time as this exposition is being held, in all probability a western boxed apple show will also be held. Some \$10,000 is being raised at the present time to put on a show of western boxed apples at the same time of the Eastern Apple Exposition.

The Michigan Apple and Potato Show will be held in Grand Rapids, Mich., November 19th to 24th. Possibly some of the fruit shown at Grand Rapids will afterwards be brought over to the big Live Stock and Crop Exposition to be held in Chicago.

Walnuts in Bulgaria

WALNUTS mean a lot to a Bulgarian housewife. Instead of buying an occasional pound or two around Christmas time, as seems to be the custom in this country, the housewife in Bulgaria makes constant use of them all the year around. Aside from ordinary eating purposes, the principal use to which they are put is the extraction of walnut oil to be used for cooking. During the war, the use of walnut oil was greatly stimulated by lack of butter and lard, and now there are a dozen walnut oil factories, says Consul Kemper, Sofia, in a report just received by the Department of Commerce. Besides that, oil is extracted in the home by the peasants, who salt the walnuts, fry them in a pan and press out the oil with a sort of rolling pin. Jam is made from green walnuts, and quantities of the ripe nuts are used in the manufacture of brandy. Both the leaves and butts of walnuts are used in certain medicinal preparations. Bulgaria used to ship tons of walnuts out of the country, but now the domestic demand is so great that practically the entire crop is marketed at home.

Rejuvenating a Pear Orchard

C. F. BOBZIEN, of Burt, N. Y., had very gratifying experiences last year in rejuvenating a pear orchard. His orchard contains 450 trees, 15 years of age, the varieties being Bartlett and Kieffer. They had borne only one crop since they were planted. The trees were in bad condition due to pears and many of them looked to be in a dying condition. He figured, however, that it would pay to try and take care of these trees and see what they would do. He found that the addition of about two lbs. of sulphate of ammonia to each tree gave remarkable results. The leaves became a dark, healthy green and lots of new wood formed. A crop of 1,000 bbls. was produced, which sold for \$3.10 a bbl.

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E. C. ATKINS & CO., Inc.,
Dept. D-1 INDIANAPOLIS, IND.**Plum Pollination**

A SECOND report on plum pollination has recently been issued by the University of California Experiment Station under the title, "Further Experiments in Plum Pollination," by A. H. Hendrickson, Bulletin No. 352. Growers all over the United States have had much trouble in getting a good set of Japanese plums, and this bulletin tells why they have this trouble. The summary of this bulletin is very interesting and is as follows:

In addition to varieties previously reported, the following Japanese plums were found to be self-sterile: Apex, Duarte, El Dorado, Formosa, Gaviota, Prize and Upright. In three years' experiments Formosa and Gaviota were shown to be inter-sterile. Beauty, Methley and Santa Rosa seemed to be self-fertile, at least to a limited degree. Apex, El Dorado, Formosa, Gaviota and Kelsey were generally found to be scanty pollen producers and therefore of questionable value as pollinators of other Japanese varieties. Beauty, Burbank, Duarte, Santa Rosa, and Wickson seemed to be the most effective pollinators for the Japanese varieties.

Among the European varieties, Imperial and Tragedy were again shown to be self-sterile. Likewise President, Quackenboss, Standard and Washington proved unable to set fruit with their own pollen. Diamond set well with its own pollen one year but failed to do so the other two. For practical purposes it must be considered self-sterile. Pond (Hungarian or Gros prune) when pollinated with its own pollen did not set any fruit in 1920, but set a light crop in 1922. It is probably partially self-fertile. California Blue, Giant and Yellow Egg were shown to be self-fertile. Grand Duke, contrary to results obtained at Davis, where it was found to be self-sterile under certain conditions, was shown to be able to set a small percentage of fruit with its own pollen. All European plums blossoming in mid-season or later appeared to be able to cross-pollinate effectively. Tragedy was able to pollinate the Japanese varieties, but was not pollinated by them.

The presence of honey bees materially aided in setting heavy crops on the following combinations of varieties: Formosa and Wickson; Beauty and Santa Rosa; Diamond and Grand Duke. Observations, furthermore, showed that many other combinations were also benefited by these insects. Inter-pollination of Formosa and Gaviota, by means of bees proved unsuccessful. The interplanting of these two varieties for cross-pollination purposes cannot be recommended.

The results showed that whenever a particular cross had been made for two or three successive years the percentage of set was usually lowest in 1922, a fact probably due to the prolonged period of cold, rainy weather during the blossoming season of that year.

Preparing for the Apple Exposition

FRUIT growers of the East interested in the Eastern Apple Exposition and Fruit Show, to be held November 3 to 10, 1923, at Grand Central Palace, New York City, held a meeting April 10 at the Commodore Hotel to discuss and perfect plans. Representatives were there from eight Eastern apple growing states. Everyone present was enthusiastic and thought that this might easily prove to be one of the most profitable educational and advertising expositions relative to the Eastern fruit growing industry that has ever been arranged. It was also believed that its influence upon the packing, sale and use of Eastern apples might mark the beginning of a new era in Eastern apple growing. It is not the purpose of the fruit growers back of this exposition to run down or try to discredit apples or other fruit grown in any other section, and the following preamble and

resolution was unanimously adopted:

"There never having been any authorized statement issued by the Eastern Apple Exposition and Fruit Show derogatory to any other sections of the United States, published articles to the contrary:

"Resolved, that the purpose of the Eastern Apple Exposition and Fruit Show is to advertise Eastern-grown fruit and fruit products; to increase the consumption of Eastern-grown apples and improve the quality of the pack; to educate the consuming public to use more fruit and fruit products; to encourage a greater effort upon the part of the fruit growers in advertising their own products, and to stimulate interest in every way in the fruit industry in the Eastern states."

The Eastern states, however, do intend to present for public exhibition and test apples grown in the East that cannot be excelled for flavor and quality, also apples of an appearance that will please the eye as well as the palate, and they intend also to emphasize the fact that these Eastern apples can be grown close to the Eastern city consumer, and are his most economical source of supply. They also expect to instruct the consumer as to what varieties to purchase for cooking, baking and dessert, and that the best of these are grown in the Eastern states.

Fruit cooking demonstrations will be held throughout the Exposition, apple and other Eastern fruit products of all kinds will be shown. Everyone attending will have the opportunity of personally testing Eastern apples. This project is certainly one that Virginia, West Virginia, Maryland, Delaware, Pennsylvania, New Jersey, every New England state and New York can all co-operate in, and not a single one of the thirteen can afford to keep out.

Everyone left the meeting with the avowed purpose of going back home and arousing more interest. We must show our possibilities and also exhibit fruit in commercial packages that can be supplied to the consumer and trade in commercial quantities. We have got to use greater care in growing and packing, and this will surely pay.

The Pear Slug

THE foliage of the pear and cherry, and at times the foliage of the plum, will turn brown in mid-summer. A close examination will show that there is present a small, slimy worm, which has eaten off the surface of the leaves, leaving nothing but a skeleton behind. Orchards in the distance often look as though fire had run over them. The attack of this insect is very weakening to the trees as it destroys the foliage, prevents the trees from hardening up properly and interferes with good strong bud development. This insect can be controlled by dusting the bodies with any dry dust or by spraying with any of the arsenicals. In some sections of the country, there are two broods. Where prompt treatment is given, this insect can generally be very easily controlled.

Family Canning

(Continued from page 22.)

spection at the time the can is opened and discard any material having an unusual appearance or odor, without tasting it. Mushy, softened foods or gas bubbles are an indication usually of spoilage. Boil the food as it comes from the can for a few minutes and the poison from the bacteria botulinus will be destroyed, as will many other bacteria. Do not use spoiled food, even if it has been boiled. Be careful what you do with spoiled products, especially vegetables and meats. Do not feed them to chickens or stock, as they might be poisoned. If there is a suspicion that it might be botulism, boil the food for one hour and then bury deep in the soil, to prevent the spread of the bacteria.

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wealth is the independence of owning your own home. California has more independent men and women than any other state. Investigate at first hand; go now. Very attractive round trip summer excursion fares on the Santa Fe daily, May 15th until Sept. 30th, limited to Oct. 31st, with liberal stopovers. Opportunities in California for the man of moderate means who desires to establish a home in a delightful country, are better now than ever. Lands are reasonable in price; long time payments granted. For example, the State Land Board of California is offering choice twenty-acre farms at Ballico, Merced County, on unusual terms. Write us if interested. Crops best suited for different localities are well proven. Highly efficient marketing organizations. California has a climate you will like—an enjoyable twelve-months' open season. Also it has thousands of miles of paved roads. Seaside and mountain resorts offer recreation for everybody. We have a fund of helpful information—at your service. On request will mail you our illustrated folder on California lands; the information it contains is dependable. C. L. Seagraves, General Colonization Agent, Santa Fe, 911 Exchange, Chicago, Ill.

FOR SALE—30-ACRE APPLE ORCHARD bearing big crop this year. Best commercial varieties. Write J. F. Littell, Grottoes, Va.**ORCHARD HOMES ON THE GULF, ORANGES, figs, grapes, pecans, etc. Easy terms. Dept. F, Suburban Acres Co., Biloxi, Miss.****PECAN-ORANGE GROVES, ON THE GULF, EASY terms. Dept. F, Suburban Orchards Co., Oceans Springs, Miss.****POLYTRY AND CHICKS****CHICKS, 8 UP, C. O. D. ROCKS, REDS, LEGHORNS and mixed. 100% delivery guaranteed, 16th season. Pamphlet, Box 85, C. M. Lauver, McAllisterville, Pa.****DAY OLD CHICKS FOR SALE—STRONG hatched, healthy chicks. Thousands per week at low prices. Circular free. Old Honesty Hatchery, Dept. G, New Washington, O.****POSITIONS—HELP AND AGENTS WANTED****AGENTS—MEN OR WOMEN, \$240 A MONTH.** Standard employment. Take orders for Jennings New Guaranteed Hosiery for men, women, children. Written guarantee with each pair to wear and give satisfaction or new hose free. All styles. Fine silk hose, low priced. Write for complete line of samples. Big money for spare time. Jennings Mfg. Co., Dept. 304, Dayton, Ohio.**EARN UP TO \$400 MONTHLY, LIVING EXPENSES PAID IN HOTEL WORK.** Splendid opportunity for trained men and women—many openings. We have more than we can fill, 90,000 hotel positions to be filled the coming year. We train you at home. Send for free booklet 256, Standard Business Training Inst., Carlton Court, Buffalo, N. Y.**AGENTS MAKE IMMENSE PROFITS AND** build big permanent business selling our extensive line men's and women's wearables, novelties and specialties in your territory. Write quick for big free catalog and full particulars. Economy Sales Company, Manufacturers, Dept. 156, Boston, Mass.**AGENTS—\$5 TO \$12 A DAY, SELL INTERLOCK guaranteed hosiery for men, women, children. Full line, all styles, colors. No experience needed. Full or spare time. Repeat orders run 90%. Prompt deliveries. Samples to start you. Parker Mfg. Co., Sample 405, Dayton, Ohio.****AGENTS WANTED—\$10 A DAY OR MORE** our new book, shows clearly how you may gain success and large profits selling Guaranteed Hosiery and Underwear. Factory to family. It is free. Write today. G & D Company, 26-E, Grand Rapids, Mich.**WE PAY \$5 A DAY TAKING ORDERS FOR** Inny Tyres. Guaranteed to prevent punctures and blowouts. Double tire mileage. Any tire. Tremendous demand. Low priced. Write quick for agency. American Accessories Co., B-205, Cincinnati, Ohio.**LARGE SHIRT MANUFACTURER WANTS** agents to sell complete line of shirts direct to wearer. Exclusive patterns. Big values. Free samples. Madison Mills, 503 Broadway, New York.**AGENTS—900 AN HOUR TO ADVERTISE AND** distribute samples to consumer. Write quick for territory and particulars. American Products Co., 2022 American Bldg., Cincinnati, Ohio.**BIG MONEY AND FAST SALES. EVERY OWNER** gets gold initials for his auto. You charge \$1.50, make \$1.35. Ten orders daily easy. Write for particulars and free samples. American Monogram Co., Dept. 92, East Orange, N. J.**ALL MEN, WOMEN, BOYS, GIRLS, 17 TO 60,** willing to accept Government Positions. \$117-\$190, traveling or stationary, write Mr. Ormeat, 259 St. Louis, Mo., immediately.**YOU ARE WANTED—U. S. GOVERNMENT JOBS.** \$117-192 mos. Many positions. Write immediately for list. Franklin Institute, Dept. T-105, Rochester, N. Y.**START YOUR OWN BUSINESS AS OUR SOLICIT** agent, selling 100 famous home products. All or spare time. Dr. Blair Laboratories, Dept. 530, Lynchburg, Va.**AGENTS—NEW DISCOVERY MAKES ALL JELLY** "jell." Big profits, constant repeater. Sample free. Joy-Jel Company, \$12 Grand, St. Joseph, Mo.**RAILWAY MAIL CLERKS—START \$133 MONTHLY** expenses paid. Specimen examination questions free. Columbus Institute S-6, Columbus, Ohio.**CANVASSERS, FOR FAST SELLING ARTICLES,** used in every home. Large commission. L. D. Parkhurst, Danielson, Conn.**EARN \$25 MONTHLY, SPARE TIME, WRITING** for newspapers. Exp. unacc., details-free. Press Syndicate, 975, St. Louis, Mo.

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HARRY W. WALKER,
Business Manager.
Sworn to and subscribed before me this
12th day of April, 1925.
(Seal) STANLEY S. FRAZIN.
(My commission expires in 1924.)

for June, 1923

Classified Advertising

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FARM WANTED—WILL BUY IMMEDIATELY.
Send particulars. Mr. Adams, 1931 Forest, St. Louis, Mo.

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LEAF TOBACCO—3 YEARS OLD, EXTRA FINE
quality. None better. Pay for tobacco and postage when received. Chewing, 5 lbs., \$1.75; 10 lbs., \$3.00; smoking, 5 lbs., \$1.50; 10 lbs., \$3.00. Farmers Union, Hawesville, Ky.

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AUTOMOBILE OWNERS, GARAGEMEN, MECHANICS, send today for free copy America's most popular motor magazine. Contains helpful articles on overhauling, repairing, ignition, carburetors, batteries, etc. Automobile Digest, 613 Butler Bldg., Cincinnati.

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WANTED—WOMEN, GIRLS, LEARN DRESS-
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WILL PAY YOU TO WRITE FOR OUR
prices and free sixty-eight page catalog. All kinds fruit trees, plants, vines, shrubs. Fine large supply peaches and one year apple trees in small or large lots by parcel post, express, freight or carload lots. Tennessee Nursery Co., Box 101, Cleveland, Tenn.

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LONS. Barreled syrup, forty cents gallon. Ralph Green, Douglas, Ga.

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Try the DIPLEX DUST REMOVER for three days, without cost or obligation. Kills the ticks when you sweep. full, hollow tones. Send a dollar if you like it; if not, send it back. Write today. **SEND NO MONEY!**

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ANNOUNCEMENT

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,

of American Fruit Grower Magazine, published monthly at Chicago, Ill., for April 1, 1923.

State of Illinois, County of Cook, ss.—Before me, a notary public in and for the State and county aforesaid, personally appeared Harry W. Walker, who, having been duly sworn according to law, deposes and says that he is the business manager of the American Fruit Grower Magazine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers are:

Publisher, Magazines, Inc., 53 W. Jackson Blvd.

Editor, Samuel Adams.

Managing Editor, C. L. Lewis.

Business Manager, Harry W. Walker.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)—C. A. Turner, L. A. Sibley, Harry W. Walker, J. E. Montgomery, Samuel Adams (all at 53 W. Jackson Blvd., Chicago); E. G. K. Meister, 501 The Arcade, Cleveland, O.; Chas. W. Price, 18 Park Row, Suite 1736, New York City.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)—None.

4. That the two paragraphs next above, giving the names of the owners, stockholders and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

HARRY W. WALKER,
Business Manager.

Sworn to and subscribed before me this 12th day of April, 1925.

(Seal) STANLEY S. FRAZIN.

(My commission expires in 1924.)

The Lewis Hardy Black Walnut

by H. R. Mosnat

IN THE Lewis black walnut—named for Prof. C. I. Lewis, editor of the American Fruit Grower Magazine—we have the first of an entirely new race of hardy black walnuts, which will no doubt in time become perhaps more important to the East and Central West—including the Corn Belt of the United States—than the English walnut industry now is in the Pacific Slope or the pecan business in the South on account of the much larger territory in which it will grow successfully.

The hardy black walnut is the third side to the triangle of the three most important nut trees in the United States. Up to this time the great objection to the black walnut has been that the nuts are hard to crack and still harder to get out the meats. With the Lewis hardy black walnut this is all changed. The shells of the Lewis are of a glassy nature and crack with ease. Complete halves can be extracted readily. A power machine has been invented which cracks several hundred pounds of ordinary black walnuts a day. In such a machine an easy cracking nut such as the Lewis will of course crack very satisfactorily and rapidly.

The outside shell of the Lewis is smoother than other black walnuts. The parent tree is from a nut in a row of trees planted about 70 or 75 years ago. It is about 90 feet tall and as much in spread and the trunk is about 3½ feet in diameter. It is growing on the poorest kind of poor soil and has no air drainage. The land is usually flooded in Winter and burns hard as a rock in Summer. A few years ago this tree stood an early cold spell of 20 below zero for two weeks. If ever a walnut tree grew under adverse conditions the parent Lewis tree is it.

The parent tree produces nuts of good size, larger than the Thomas, but grown on fertile soil and under more favorable conditions, the nuts should be considerably larger.

The flavor of the Lewis black walnut is milder than other black walnuts, being more like the quality of the English walnut, but with a distinct and pleasant black walnut taste.

Black walnut growing has always needed the impetus of a better variety than any so far known, and in the Lewis black walnut we seem to have this long desired better black walnut. The Lewis is being tested in Canada, New England and southern Alabama to learn its adaptability to widely separated sections. There is no doubt as to it being very much at home all over the Corn Belt and anywhere else that the ordinary black walnut grows.

It is hard to estimate the ultimate value of such an improved black walnut as this. It will do well over such a large territory and on land of little value for any other crop—literally millions of acres—and the crop of black walnut meats will be consumed rapidly as soon as there is a supply to be had. For instance, Thomas meats sold this season for \$1.35 a pound, while wild nuts in the shell sold for only seven cents a pound to the grower. Candy manufacturers will be glad to use black walnut meats by the carload—but cannot get them. One bushel of nuts in the shell will crack out about eight pounds of meats.

The Lewis black walnut cracks so easily that it avoids the difficulty of small bits of shell with the meats—a serious trouble with other black walnuts. Also, the candy makers and bakers prefer half meats instead of smaller pieces, and this condition is easily met by the Lewis black walnut. The right way to market nuts, especially black walnuts, is to sell the meats. The shells are good for fuel and also make the best charcoal for gas masks. The husk makes a wonderful dye, used for hair dye, khaki dye, etc.—so there are interesting by-products. In the South pecan meats are packed in vacuum cans, both glass and tin, and in this convenient package, the meats keep almost indefinitely.

Page 29

AJAX TIRES

You get the combined advantages of quality, service and economy. ~ ~ ~ ~ Under severest conditions they afford exceptional non-skid security ~ ~ ~

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2 H.P.—Pulls 2
\$45.00
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Some Complete—Battery Included.
MUCH Smaller of small and extra.
ALL OTHER SIZES and STYLES
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You Need This Book

We wish that it might be possible to persuade every reader of the AMERICAN FRUIT GROWER MAGAZINE to secure, and study carefully, a copy of Insecticides, Fungicides and Applications by Professors O. G. Anderson and F. C. Roth of Purdue University—an attractive authoritative manual of 337 pages, 70 figures and containing a wealth of material which every orchardist ought to have.

It offers instructions in preparing insecticides and fungicides as applied to horticultural crops, and includes a

detailed study of spraying and dusting equipment.

The relation and value of spraying, as compared with other control measures, is clearly shown. Many effective methods are briefly reviewed and classified.

Special ingredients, methods and equipment are discussed and reasons for a rise or decline in their usefulness are given.

In fact, it covers the subject thoroughly and is written in simple form so that everyone may understand.

Special Offer

Believing that a wide distribution of this book will help materially to promote a better understanding of the subject of spraying and dusting ingredients, methods and equipment, we have made a special arrangement with the publishers whereby we can offer you Insecticides, Fungicides and Applications with a three year subscription to the AMERICAN FRUIT GROWER MAGAZINE both for only \$3.00.

This is a remarkable offer and as it is possible that we will have to withdraw it shortly, we urge your immediate acceptance. Use the coupon.

American Fruit Grower Magazine,
53 W. Jackson Blvd., Chicago.
Enclosed is \$3.00 in acceptance of the
above offer.

Name

Address

Town State

We have acres in fruit.

Organizers Wanted for "UNCLE SAM'S VOTERS"

Men and women of character—
young or old—can add materially to their incomes by devoting part or all of their time toward assisting in the organization of **UNCLE SAM'S VOTERS**.

The work is dignified, interesting, profitable business and professional men—college students—ministers—salesmen and school teachers will delight in the opportunities and the profits this new work affords!

**What Is The
National
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Uncle Sam's Voters

It is a national, non-profit federation with local assemblies—organized regardless of political affiliations—to awaken and sustain a lively and an intelligent interest in American government through group meetings and the official magazine, **PUBLIC AFFAIRS**. **UNCLE SAM'S VOTERS** are to be organized in every city and community on the basis of the inspired words of Samuel Adams in 1772:

"Let us converse together, and open our minds freely to each other. Let every town Assemble. Let Associations and Combinations be everywhere set up to Consult and Recover our just Rights."

Ira Nelson Morris has resigned as Minister to Sweden to be president of **UNCLE SAM'S VOTERS**. Ex-Congressman James W. Good and Mary Lee Adams are vice-presidents; G. B. Wayland is secretary. Samuel Adams of Chicago, farm paper editor and president of the American Agricultural Editors' Association, is Director General. An advisory board of 100 citizens is being selected. Explanatory booklet on request.

\$200 for an Opinion

UNCLE SAM'S VOTERS will award five prizes ranging from \$100 to \$10 for the five best letters on the following subject: "Why I am joining **UNCLE SAM'S VOTERS**."

Send us the reasons that appeal most strongly to you for joining **UNCLE SAM'S VOTERS**. Anyone is eligible to compete. Contest ends June 30th, 1923.

GET IN AT THE START:

The first applicants can choose their own territory. Sign your name and—

MAIL THIS COUPON NOW

Samuel Adams, Director General,
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Citizens Bank Bldg., Washington, D.C.
Kindly send me full information concerning the opportunities for making money by assisting in the organization of **UNCLE SAM'S VOTERS**.

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THE F. E. MYERS CO.
150 Church St.
Akron, O.

PUMPS

ly in good condition. This same method can be used for black walnut meats. The California English walnut crop is being sold more and more in the form of cracked nuts—that is, the meats. Large consumers especially do not care to bother about cracking the nuts they use.

Prof. J. A. Nelson, Department of Horticulture, Ontario Agricultural College, Guelph, Ontario, says of the Lewis black walnut: "The nuts have just arrived and have been examined. I am very well pleased with them indeed. They crack easily and have a large kernel which should be very good for eating when properly cured. I think you have made a real find in locating this valuable black walnut."

Dr. Robert T. Morris, New York City, writes that the Lewis black walnut cracked easily and two complete halves were extracted and that the kernel is of excellent quality and he says that he wants to add this black walnut to his collection.

Brusseler Braune Cherry

I HAVE been a reader of the best fruit magazine—The AMERICAN FRUIT GROWER MAGAZINE—for many years and have watched with special delight and satisfaction the steady improvement from year to year—yes, almost from month to month. Especially is this improvement noticeable in the 1923 issues and I eagerly await their arrival.

The AMERICAN FRUIT GROWER MAGAZINE has given me many valuable hints, suggestions and methods which have made me many dollars, and I am glad to know that its staff of editors are men of practical experience in the various lines of horticulture. I congratulate you upon the splendid success you are having. I cannot see how any fruit and berry grower can possibly afford to be without it. The timely suggestions offered in a single number are worth many times the annual subscription price. The great value of the information given out by your magazine lies in the fact that it is the result of practical experience and not theory.

Now I want to ask you a question. I have two Brusseler Braune cherry trees, purchased in 1912. They have made a fine growth but produce very little fruit—about two dozen cherries to a tree. The Montmorency alongside of it bear heavily each year. What is the trouble? I am thinking of cutting them down.—J. D. Leisure, Indiana.

Our Answer: We wish to thank you very sincerely for your very kind words concerning the AMERICAN FRUIT GROWER MAGAZINE. We assure you we heartily appreciate the encouragement received from subscribers like yourself.

The Brusseler Braune cherry may possibly be sterile or it may not be well pollinated with the Montmorency. You might perhaps be safe in coming to that conclusion provided your trees bloom heavily but set little fruit. This cherry, however, is not considered a good commercial proposition. The tree is a very uncertain bearer, the fruit tends to be small and sour and ripens unevenly. It belongs to the English Morello type, one which the canneries as a rule do not desire. It is supposed to be rather hardy and adapted for the colder sections of the United States but there probably are other superior sour cherries just as hardy. You have probably noticed that this variety has small leaflets on the base of the stems of the fruit, which have to be removed before the fruit is sent to the cannery.

I would not, however, cut down these trees were I you but I would work them over to such varieties as Montmorency or Early Richmond. If you have dormant scions, graft the trees this spring; otherwise, cut them back, thus forcing out vigorous sprouts, which you can easily bud next July or August or whenever the bark will slip. In two or three years you will thus be obtaining big, fine crops of cherries, whereas if you cut your trees down you lose entirely ten years of growth. We had an article in our March issue on grafting trees.

Gardening With the Landscape

by Sylvanus Van Aken

BEFORE succeeding with landscape Gardening I had to invent a Mind Picture, all grading, fixing, etc., being incidental. The sward was the canvas and the house the central point. This picture must have landscape effect; carpet beds and masses of color are not pictures and must be sparingly used. Every other conception is only another form of this effect.

To begin, one must first conceive of the place as a unit. Ornamental gardening is only a part of landscape gardening. There must be some one central or emphatic point from which to work. The house in my home grounds is the central point. The borders on the place are as important as the center. One must keep the center open, avoiding scattering effects. Flowers and high colors appear most effective in borders and are incidental in the work. The lawn and massed effects are the framework. One flower in the border is often worth more to the picture than twenty in the lawn. More seems to depend upon the position of flowers to each other and in reference to the structures of the place than in the value of the plants themselves.

Grading and shaping the land is landscape horticulture. It is best to plan this according to the original lay of the land. Then after scraping and more plowing use a planer, which can be made of planks six feet wide and twelve feet long, with a board turned up at right angles in front to plane the surface. Then one must harrow and harrow; after that, hand tools, shovel and rake must be used. The planer acts as a straight edge on the surface. I always save the surface soil and then use a sub-soil plow and stir things up before the surface soil is returned. The land should be left two or three inches higher than wanted, to allow for settling. Borders of grass-sod should be put lower.

If I have springs to drain, I find it better to dig my drain from above the spring rather than from below, as one can in that way cut off the supply that feeds the spring. Tiled drains break up the subsoil, like subsoil plowing, and makes dry, hard soil loose and moist. I put tiles three or four feet deep.

The lawn may be made in two ways, to sod or to seed. The best material for sodding can be taken from an old pasture. Lay down a board by which to cut the sod, loosen and roll it up, dirt side out, unroll and lay where wanted; then heavily pound it flat, hard as you can rap it. When seeding is resorted to, one will find Kentucky June grass is best for northern lawns, two and a half to three bushels to the acre. I sow the grass seed thick, so as to have grass instead of hay. One should not pull up the weeds—cut them off; if one should dig out dandelions, burdock and dock, then fill up holes with grass.

Terraces should be sodded with strips of grass, up and down, and the strips pegged down with long wooden pegs. Mulch summer sodding with good garden loam an inch-deep. Grass will grow up through quite a layer of ground. I plant trees, after ground is graded, before making the lawn. If you can not stand so much green grass in the open, sow petunia and poppy seeds broadcast; they will not hurt the grass and will give color. If the soil becomes very hard, one can put on more soil and reseed. Some put the ground on and then sow grass seed on the snow.

Locating the Berry Patches

by Lewis Hillara, Kansas

IN selecting the plot of ground for the berry patch, there are several things to take into consideration. Protection from cold winds, frost, and soil water; the condition of soil and lay of land in reference to warmth and early drying;

and the depth of soil. It is seldom possible to have all these things as we would have them, but we can take a good survey of the possible locations to get the one most nearly ideal.

A windbreak of evergreens, or one made of boards if the evergreens can not be had, will serve as a protection from cold winds, but if a hill to the northwest is at hand it helps a lot, though the plot should not be at the foot of the hill nor much sloping. Late frosts do much damage to the blooms if we do not take that into consideration when we locate the patch. Low ground is much more subject to frost than high, and I should be the aim to have lower ground to which the cold air can drain from the berry patch. If we have this frost drainage with height enough above the low ground we will find a sunny exposure very favorable. This location will give good drainage which takes care of the soil water.

Warm and Moist.

The slightly sloping ground with the slope to the south or southeast will tend to make the soil warm up earlier in the spring and dry so it can be worked earlier than ordinary locations. Where we plant on the slope of a hill we must be careful to examine the depth of soil or we may find it like a very promising looking garden patch I once rented. To my sorrow I found that it was composed of a thin layer of soil over a lot of rock, and it dried out when the summer heat became severe, and the crops withered. A good depth of subsoil is necessary for a good berry patch. Either rock or hardpan less than two or three feet from the surface, will be detrimental. No matter how rich you make such a soil you can never get the best results for the soil is not deep enough to hold sufficient soil moisture to keep up a good growth during anything like a severe dry spell.

A stiff clay soil will not be a good soil for berries, but a sandy-clay loam is ideal. There should be plenty of humus, and if it is not already there the first thing to do is to get it there. Well rotted manure with lots of bedding will answer even if the plants are to be set immediately, but the best plan is to give a good strong manuring a season before the berries are planted, grow an early crop and sow a cover crop to be turned under during the winter or very early in the spring, this to be preferably of some legume.

Cull Apples

THE Washington State College has found that cull apples are worth \$19. a ton as hog feed. Extensive experiments were conducted the past year. Pigs which weighed 94.8 lbs. each at the start of the experiment gained in weight 66.1 lbs. each, or an average of 1.38 lbs. per day. Each pig was fed an average of 4.22 lbs. of apples and 4.17 lbs. of grain per day. It was found that the apples saved, per every 100 lbs. of gain, 4.09 lbs. of tankage, 31.7 lbs. of millet and 94.42 lbs. of barley. To do this, 296.5 lbs. of apples were fed. As the apples are bulky, containing little protein, it is necessary to include a little more tankage in the grain mixture.

The Drying of Cherries and Loganberries

(Continued from page 5.)
of filling, and of closing and covering, is all tremendously interesting to develop and to watch but space forbids its description here.

Another long and interesting story is the story of the co-operative marketing methods including the development of strong marketing connections through widely scattered areas. Take for example, the Oregon Growers' Cooperative Association. With a rapidly growing reputation for a dependable pack and a wide variety of products, the Association is in position to push a given product as no single concern can do.

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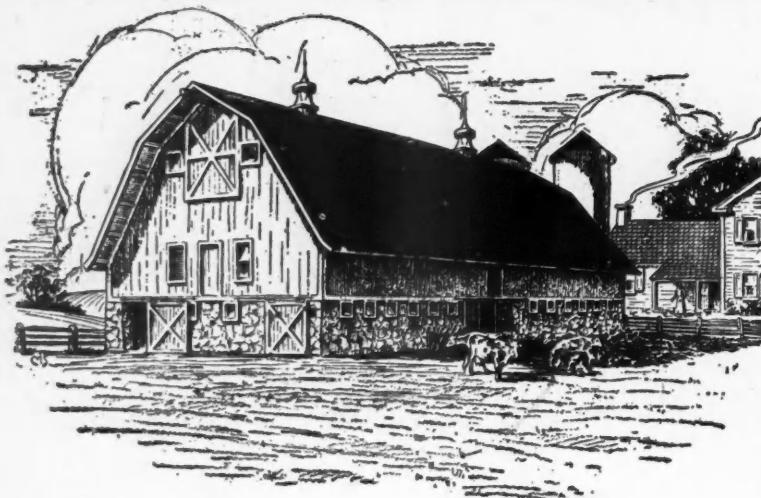
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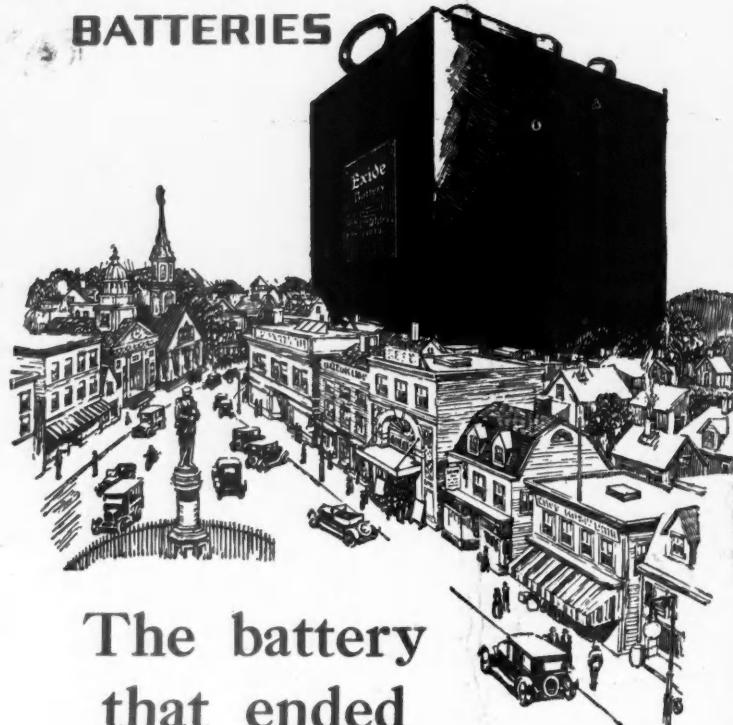


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